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JOINT TACTICAL TRAINING AND INTEROPERABILITY

by

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A paper submitted to the Faculty of the Naval War College in partial satisfaction of the requirements of an Advanced Research Project.

The contents of this paper reflect my own personal views and are not necessarily endorsed by the Naval War College or the Department of Navy.

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Abstract of
JOINT TACTICAL TRAINING AND INTEROPERABILITY

Joint tactical interoperability requires a well organized and integrated approach to joint training. Despite several needed structural changes in joint command relationships and staffing effected by the 1986 Defense Reorganization Act, joint interoperability problems continue to occur. A broad overview of the current status of joint training and interoperability will provide a background for possible improvements to joint training programs. The services, in concert with the Joint Chiefs of Staff, can maximize joint capabilities through a systematic effort aimed at true operational integration. Such a program would simultaneously promote increased tactical level joint training and education, refine and enhance joint officer personnel programs and effectively disseminate lessons learned from both joint and single service operations.



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PREFACE

Professional journal and newspaper articles cover the period from 1988 to the present, with the majority of articles being published in the last two years. Questionnaires were distributed to Navy War College students who participated in Operations Desert Shield and Desert Storm, with an approximately fifty percent response rate. Appendix II contains a questionnaire sent to several Navy, Air Force and Marine Corps tactical training establishments. Similar tailored questionnaires were sent to various service and joint operational and training commands. Response rates were similar to the student questionnaires. Personal interviews and telephone conversations with various commands comprised another major source of information.

TABLE OF CONTENTS

CHAPTER	PAGE
ABSTRACT	ii
PREFACE	iii
I INTRODUCTION	1
The Problem	1
Scope of Analysis	1
II THE REQUIREMENT FOR IMPROVED TACTICAL JOINT TRAINING	3
Goldwater-Nichols Defense Reorganization Act	3
Skelton Panel Report on Joint Professional Military Education	4
Deconfliction Versus Integration	6
Budget Pressures	7
Interoperability Problems During Desert Shield and Desert Storm	7
Joint Forces Air Component Commander Operations	8
Intelligence Support	9
Data Link Connectivity	10
Additional Operational Disconnects	10
Initial Department of Defense Assessment	11
Chapter II Notes	13
III THE CURRENT SITUATION	15
Overview	15
Tactical Schoolhouses	15
Joint Exercise System	17
Ad Hoc Joint Training	18
Tactical Unit Evaluations	19
Intraservice and Interservice Interoperability	19
Persistent Service Bias	22
Towards Systematic Joint Training	23
Chapter III Notes	25
IV REVISING JOINT OFFICER PERSONNEL POLICY	26
Goldwater-Nichols Requirements	26
Joint Duty Assignment List	26
Interservice Officer Exchanges	28
Gulf War Joint Duty Credit	32
Joint Duty Assignment List Modifications	33

	Chapter IV Notes	36
V	EXERCISING JOINTLY	38
	How "Joint" Are Joint Exercises	38
	Current Joint Exercise System	38
	Master Joint Mission Essential Task List	40
	Service Joint Training Responsibilities	42
	Large Scale Joint Exercises	44
	Coordinated Joint Training Plans	44
	Commander-in-Chief America/Contingency	45
	Lessons Learned in Exercise Planning	46
	Joint Exercise System	46
	Chapter V Notes	49
VI	UTILIZING LESSONS LEARNED	50
	Joint Center for Lessons Learned	50
	Remedial Action Projects Program	52
	Navy Lessons Learned System	53
	Marine Corps Lessons Learned System	58
	Chapter VI Notes	60
VII	SCHOOLHOUSE AND UNIT TRAINING	62
	Overview	62
	Joint Expertise at the Schoolhouse Level	63
	Joint Training Initiatives	64
	Interservice Training Review Organization	65
	Joint Doctrine and Tactics, Techniques and Procedures	67
	Tactical Schoolhouses as Centers for Joint Tactics Development	68
	Use of Lessons Learned	68
	Staff and Command Element Training	69
	Increasing Joint Course Accessibility	70
	Chapter VII Notes	73
VIII	CONCLUSIONS AND RECOMMENDATIONS	75
	New Awareness	75
	Finding the "Right" Level of Joint Integration	75
	An Integrated Approach to Promoting Joint Interoperability	76
	Developing Joint Attitudes	77
	Composite Wings	79
	Summary of Recommendations	81
	Chapter VIII Notes	86
	APPENDIX I--GLOSSARY	87
	II--SAMPLE QUESTIONNAIRE	92
	BIBLIOGRAPHY	99

JOINT TACTICAL TRAINING AND INTEROPERABILITY

CHAPTER I

INTRODUCTION

The Problem. The 1986 Defense Reorganization Act, better known as Goldwater-Nichols, addressed the need for better integration of the nation's defense capabilities. Although Goldwater-Nichols effected several needed structural changes in joint command relationships and staffing, the degree of interservice interoperability envisioned by Congress was not achieved. Unchanged by Goldwater-Nichols is the manner in which the individual services equip and train their forces -- based upon their own parochial view of operational requirements rather than the way in which these forces will actually be employed, in a joint environment. The services, in concert with the Joint Chiefs of Staff, can maximize joint capabilities through a systematic effort aimed at true operational integration. Such a program should simultaneously promote increased tactical level joint training and education, refine and enhance joint officer personnel programs and effectively disseminate lessons learned from both joint and single service operations.

Scope of Analysis. This study will attempt to give a broad overview of the present status of joint training and interoperability as well as current programs designed to improve weaknesses in these areas. The impact and

limitations of the Goldwater-Nichols legislation form a basis for discussing additional methods aimed at improving the joint warfighting capabilities of the armed services.

Selected instances from Operations Desert Shield and Desert Storm will be used to illustrate shortcomings in joint interoperability and thereby demonstrate a practical requirement for improved joint training and education. Key programs which have significant potential for improving joint interoperability will be examined in detail:

- joint officer personnel policy
- joint exercise programs
- joint and service lessons learned programs
- "schoolhouse" and unit training programs

Specific weaknesses and strengths in each of these areas will be discussed along with recommendations for modification and improvement.

Emphasis will be primarily on Navy programs and policies; interoperability issues will focus, for the most part, on Navy-Air Force interaction. Other service and joint programs will be selectively examined in order to identify the most effective means of achieving joint tactical integration.

CHAPTER II

THE REQUIREMENT FOR IMPROVED TACTICAL JOINT TRAINING

Goldwater-Nichols Defense Reorganization Act. Acting in response to perceived weaknesses of U.S. military operations during Vietnam, Lebanon and Grenada as well as the failed attempt to rescue the hostages in Tehran in 1980, Congress enacted the Defense Reorganization Act of 1986, commonly known as the Goldwater-Nichols Act. The Act buttressed the authority of the combatant Commanders-in-Chief (CINC's), while simultaneously limiting the operational control of the service chiefs.¹ Key among its provisions is a requirement to establish a cadre of officers "particularly trained in, and oriented toward, joint matters." Requirements for training are laid out in general terms while tour lengths in specially designated joint billets are covered with great specificity.²

While the joint officer requirements of the Act have had great success in improving the quality of joint operations from a staff perspective, that level has become the practical limit of its effects. The Act's primary focus was on staff-level problems in joint cooperation and integration and it failed to address the unit level aspects of joint operations. This can best be illustrated by examining the requirements for Joint Professional Military Education (JPME) which grew out of Goldwater-Nichols.

Skelton Panel Report on Joint Professional Military Education (JPME). The Panel on Military Education, chaired by Representative Ike Skelton (D-MO), and operating under the direction of the House Armed Services Committee, conducted an extensive review of U.S. Professional Military Education (PME) programs and how they might best be structured to fulfill the joint education requirements imposed by Goldwater-Nichols. Its report, issued in April 1989, has become the precept upon which the military's joint education programs are based.³

The panel found that within the broad heading of "joint matters", defined by Goldwater-Nichols to include (among other items) "the integrated employment of land, sea, and air forces" and "command and control of combat operations under unified command" there were "subsumed" a number of items, among them joint and combined operations and joint doctrine.⁴ It can be argued that similarly "subsumed" within the definitions of joint and combined operations and joint doctrine are joint tactics and procedures, formally designated by the Joint Chiefs of Staff (JCS) as Joint Techniques, Tactics and Procedures (JTTP). By failing to identify a requirement that Joint Professional Military Education address this basic area, the panel report disregarded an extremely important facet of modern military operations.

A basic assumption regarding military operations can be inferred from the panel reports "Overall Views". By heavily

emphasizing the need for improved staff officer joint education and implicitly ignoring concomitant operational training requirements, the inference is that modern military forces are like chess pieces, which can be manipulated at will, with very predictable results.⁵ Advanced command, control and communications (C3) systems reinforce the notion that war is something akin to a video game, with the participants instantaneously acquiescing to command intent. Today's high technology weaponry, with its inherent speed and lethality, requires more rather than less, discretion and judgement on the part of the operator.

While readily recognizing the panel report's premise that neglecting the education of its staff officers is bound to have deleterious effects on the efficiency of a military organization, it is also apparent that disregarding the joint training requirements of units, ships and squadrons limits the capabilities of our overall military effort. Teaching theater-level art only to officers destined for joint commands makes little sense if some of its primary practitioners belong to service components, such as numbered fleet and air force commanders and their staffs.

The intention of the Goldwater-Nichols Act and the Skelton Panel report may have been to address only one significant level of joint interaction and hence, joint education, at a time. However, the practical effect is that the envisioned improvements in joint operations will only be partially achieved. Since the "joint world" (joint commands

and agencies) and the "operational world" (component commands and units) operate in almost two separate spheres, with often no more than a cursory acknowledgement of each other's existence, total joint integration requires the introduction of joint education targeted at all levels of the military force structure supported by training and exercise programs which emulate the real-world standards of joint operations.

Deconfliction Versus Integration. Due to a paucity of joint tactics and procedures, joint operations and exercises typically use time and space deconfliction to regulate maneuvers within an area of operations.⁶ However, given the radically reduced force structure already programmed for 1995, such operational adjustments will, in all likelihood, be no longer feasible. This is especially so in those cases where a single service has a unique tactical capability, for example:

- E-3A AWACS (Airborne Warning and Control System)
- KC-10/KC-135 high capacity aerial refueling platforms
- EA-6B tactical jamming aircraft
- AH-58 AHIP (Advanced Helicopter Improvement Program) helicopters.⁷

Budget realities will not permit multi-service acquisition and duplication of such high-ticket assets. The ability to handle combat operations on an independent, single-service basis will no longer exist, except in the most restricted of circumstances.

Budget Pressures. The dramatic events in Eastern Europe and the Soviet Union, which began in 1989 and reached yet another culmination with the unsuccessful coup attempt in the Soviet Union in August 1991, have produced ever increasing pressures to decrease defense spending well beyond even the 25 percent reduction programmed for the first half of this decade. A recently completed Brookings Institution study argues that further substantial cuts in force structure can safely be made.⁸ Although too late to effect the budget process for fiscal year 1992, serious attention in Congress is being given to revisiting the defense allocations contained in the 1990 budget agreement and exploring the feasibility of further cuts beginning in fiscal year 1993.⁹ The odds are that the current rampdown in military spending will, rather than flattening out, accelerate further. The necessity of optimizing the capabilities of a much reduced force structure will thus become all the more pressing.

Interoperability Problems During Desert Shield and Desert Storm. The scope and complexity of operations prior to and during the Persian Gulf conflict dictated an unprecedented level of operational cooperation between the services and revealed both the dividends and shortcomings of the Goldwater-Nichols reforms. The Central Command staff organized, deployed and employed at a theater level a force of prodigious size and complexity without serious complication. However, the operational difficulties

encountered at lower levels in the chain of command were myriad and often quite persistent. The practical realities of integrating forces that train and operate as essentially autonomous entities are such that rapid and smooth operational employment cannot be accomplished without complication. The extensive preparation period provided by Desert Shield - over 5 months prior to the beginning of the air campaign during Desert Storm with an additional month prior to the beginning of the ground campaign - failed to alleviate many interoperability problems and demonstrated how hard it would be to execute an operation of comparable scale with little or no "workup period".

The Center for Naval Analyses, in studying Desert Storm operations, identified several areas where interoperability problems existed between the Navy and the Air Force. Among others, they included Joint Force Air Component Commander (JFACC) operations, intelligence support and data link connectivity.¹⁰

Joint Force Air Component Commander Operations.

Significant problems existed with the both the development and distribution systems for the Air Tasking Order (ATO), the JFACC-produced document which coordinated all overland air activity within the theater. The Navy lacked sufficient senior officer representation in Riyadh to impact the target selection and resource allocation process, which was dominated by the Air Force (through sheer numbers and seniority).¹¹ This lack of true jointness at both the

executive and individual planner levels precluded the ATO from accurately reflecting multiservice concerns and capabilities.¹² The Computer Assisted Flight Management System (CAFMS) used to develop and transmit the ATO was incompatible with shipboard communications systems and not even totally reliable for transmission to ground sites with the requisite equipment. Shuttle flights were used to ferry the ATO both to air bases within theater and carriers at sea.¹³

Designed primarily to allocate assets against fixed targets in the theater-level air campaign envisioned for war on the Central Front in Western Europe, the ATO process lacked the flexibility to handle rapidly changing target sets, such as mobile Iraqi Scud missile launchers, which were common in the Gulf War.¹⁴ The level and response of the Iraqi air threat never demanded an efficient allocation of its finite air resources by the JFACC.¹⁵

Intelligence Support. Differing philosophies on the use and role of intelligence between the Air Force and the Navy impacted the quality of this support throughout the war. Inadequate communication between Air Force intelligence officers and their operational counterparts hampered strike planning efforts.¹⁶ A commonly agreed upon system for Bomb Damage Assessment (BDA) was not developed prior to the beginning of hostilities and as a consequence proved less than adequate. Control and utilization of reconnaissance assets was never optimal. Adequate support

for target nominations from carriers at sea proved to be difficult.¹⁷

Data Link Connectivity. Obvious connectivity problems existed between Air Force E-3A AWACS (Airborne Warning and Control System) aircraft and Navy ships operating in the Persian Gulf due to hardware mismatches and architecture workarounds that didn't work.¹⁸ Part of the problem may be traceable to lack of Navy participation in a series of joint exercises sponsored by the Army's Forces Command which stress inter-service data link communications, known as Joint Systems Training Exercises (JSTE). Fleet Combat Training Center, Atlantic has participated in these exercises since 1985 but participation by Atlantic Fleet units has been inconsistent and Pacific Fleet participation is just now being explored.¹⁹

Additional Operational Disconnects. Other interoperability problems existed that should have been resolved during peacetime training exercises and operations.

- The Navy insisted on retaining control of overwater F-14 Combat Air Patrol (CAP) operations although Air Force AWACS aircraft maintained the best tactical picture of the Persian Gulf.²⁰

- Confusion existed over the operating procedures to be employed by Air Force F-15 High Value Unit (HVV) Combat Air Patrol aircraft supporting Navy EA-6B tactical jamming aircraft on strikes into Iraq since this procedure had never been exercised before.²¹

- During joint airborne refueling operations some Air Force tankers (KC-10 or KC-135 refueling aircraft) conducted combat air refueling operations without radio communications (known as "ziplip"), which is standard Navy peacetime procedure, but not practiced by the Air Force during peacetime operations.²² This practice, however, was not universal. Air Force tankers refused to move their tanking track locations even in cases of bad weather.²³

- Fratricide (friendly fire) incidents involving Air Force aircraft and Marine ground forces have been partially attributed to limited joint training between the two services (Marine or Navy aircraft generally provide close air support (CAS) for Marine ground forces; the Air Force provides close air support for Army troops). Insufficient working level coordination of operations between Marine and Air Force counterparts and less than flexible close air support taskings in the ATO also contributed to fratricide problems.²⁴

Initial Department of Defense Assessment. The Department of Defense's interim report to Congress on the Persian Gulf Conflict made initial observations on the conduct of the war including a succinct summary of the current status of joint integration efforts:

While the progress in operating under coherent joint doctrine is unmistakable, preliminary anecdotal reports tend to suggest that the high degree of cooperative combat operations actually achieved is not yet backed up by a fully mature and genuinely "purple" culture of integrated joint training and operations. Much of the aggregate combat power achieved by the highly

integrated military campaign was facilitated by "work arounds" which bridged disparate Service planning procedures and cross-connected specialized intelligence and tactical data systems.²⁵

Specific deficiencies were discussed in the report and echo those previously cited herein:

- Supporting intelligence doctrine is not as advanced as joint operations doctrine.²⁶

- Bomb Damage Assessment (BDA) procedural doctrine needs refinement and updating.²⁷

- The Air Tasking Order (ATO) development process should be streamlined and equipment compatibility effected.²⁸

- Incidents of inadvertent firing on friendly forces, primarily air-to-ground and ground-to-ground.²⁹

Solutions to all these problems are being explored but their very existence points to the difficult obstacles associated with merging single service capabilities into a joint warfighting structure.

CHAPTER II NOTES

- 1 Larry Grossman, "Beyond Rivalry," Government Executive, June 1991, pp. 10-11.
- 2 U.S. Laws, Statutes, etc., "Goldwater-Nichols Department of Defense Reorganization Act of 1986," United States Statutes at Large, Public Law 99-433, 99th Congress, 2nd sess. (Washington: U.S. Govt. Print. Off., 1986), v. 100, pt. 1, pp.1025-1026.
- 3 Telephone conversation with Commander Douglas Rhoulstone, Bureau of Naval Personnel (PERS -2JJ), Washington, DC, 20 September 1991.
- 4 U.S. Congress, House, Committee on Armed Services, Report of the Panel on Military Education, (Washington: U.S. Govt. Print. Off., 1989), pp. 59-61.
- 5 Panel on Military Education, pp. 17-19.
- 6 Interview with Captain Ron Pearson, Tactical Training Group U.S. Atlantic Fleet (Code 32), Dam Neck, VA: 3 October 1991.
- 7 Interview with Lieutenant Colonel Fleming, Joint Chiefs of Staff, J-7 (Operational Plans and Interoperability Directorate), Joint Exercise and Training Division, Washington, DC: 30 September 1991.
- 8 Patrick E.Tyler, "U.S. Could Cut Defense Spending By More Than 33%, Report Says," The New York Times, 24 September 1991, A29:1-2.
- 9 Eric Schmitt, "World Events Overtake Military Budget Process," The New York Times, 14 October 1991, p. A14:1-2.
- 10 Interview with Dr. Christine Fox and Dr. Allen Brown, Center for Naval Analyses, Alexandria, VA: 30 September 1991.
- 11 Fox and Brown interview.
- 12 Daniel J. Muir, "A View from the Black Hole," U.S. Naval Institute Proceedings, October 1991, p. 86.
- 13 Fox and Brown interview.
- 14 Norman Friedman, Desert Victory: The War for Kuwait (Annapolis, MD: Naval Institute Press, 1991), p. 175.
- 15 Fox and Brown interview.

- 16 Muir, p. 86.
- 17 Fox and Brown interview.
- 18 Fox and Brown interview.
- 19 Interview with Commander David O'Neil (Code 27) and Chief Warrant Officer Brody, Fleet Combat Training Center Atlantic, Dam Neck, VA: 3 October 1991.
- 20 Fox and Brown interview.
- 21 Fox and Brown interview.
- 22 Interview with Lieutenant Commander Russell Early, Strike Weapons and Tactics School Atlantic Executive Officer, Oceana, VA: 3 October 1991.
- 23 Interview with Mr. Robert O'Dell and Lieutenant Commander Rogers, Commander-in-Chief U.S. Atlantic Fleet Staff, Norfolk, VA: 4 October 1991.
- 24 Julie Bird, "Confusion, limited AF-Marine Training contributed to mistakes, analysts say," Navy Times, 26 August 1991, p. 13:1-2.
- 25 U.S. Dept. of Defense, Conduct of the Persian Gulf Conflict: An Interim Report to Congress. (Washington: 1991), p. 21-2.
- 26 U.S. Dept. of Defense, p. 14-1.
- 27 U.S. Dept. of Defense, p. 14-2.
- 28 U.S. Dept. of Defense, p. 15-3.
- 29 U.S. Dept. of Defense, p. 17-1.

CHAPTER III

THE CURRENT SITUATION

Overview. Joint training and education exists in a developed form only at the joint command staff officer level, largely as a result of Goldwater-Nichols requirements which were refined by the Skelton panel report. Officially designated Joint Professional Military Education (JPME), it consists of two phases. The first is primarily taught at the intermediate and senior level service war colleges while the latter, and more abbreviated, phase is given at the Armed Forces Staff College in Norfolk. Both phases stress joint staff officer knowledge requirements but the service war colleges do retain some portion of their traditional curriculums and service orientation.

Similar programs generally exist only at a rudimentary and undeveloped stage where tactical education and training are concerned. Tactical training, including joint training, occurs at tactical schoolhouses, in unit-level cyclic training programs and in component and joint exercise programs. This training system is driven, for the most part, by independently derived service training needs. Where joint interoperability requirements are satisfied it is more by happenstance than design.

Tactical Schoolhouses. The single service equivalents of joint techniques, tactics and procedures are taught in what can generally be termed "tactical

schoolhouses". The Navy Fighter Weapons School ("Top Gun"), Naval Strike Warfare Center ("Strike University"), Tactical Training Groups Atlantic and Pacific, the Air Force Fighter Weapons School and the 4440 Tactical Fighter Training Group ("Red Flag") all fit into this category. Little joint training is currently done at these tactical schoolhouses, for a variety of reasons.

Some, such as the Navy's tactical training groups, are making a concerted effort to include joint topics in their curriculum, but are frustrated by the dearth of joint tactics and procedures which would parallel the single service tactics which make up the bulk of their courses. When other service units participate in tactical exercises sponsored by these commands, such as Red Flag, at Nellis Air Force Base, Nevada, their role is primarily as an opposition force, or "opfor". Their primary function is to simulate Soviet or other threat forces.

Two circumstances inhibit the tactical schoolhouses from contributing in a more positive way to joint training needs, neither of which can be reasonably be laid at their doorstep. One is a lack of joint expertise on their staffs. As "non-purple" commands, they do not own joint billets (those on the Joint Duty Assignment List), which have first call on joint-trained and designated officers. The second is the real lack of formalized joint tactics and procedures to teach.¹ With little expertise in joint matters and without an understanding of how joint tactics, techniques

and procedures would support joint doctrine, they are handicapped in instituting effective joint training programs.

Logic would dictate that once joint tactics and procedures are developed and formalized these institutions of tactical expertise should teach them. In view of the current lack of such tactics and procedures, it is precisely these establishments which should have an active, if not primary, role in their development. Since these commands fulfill that role for service-unique training, they should be well positioned to positively impact the development of joint training requirements and norms.

It is their very role as "service" institutions, with service-unique training requirements and service accountabilities, that prevents them from influencing joint training requirements. If given joint responsibilities as well, with some level of accountability and a parallel chain of command to a "joint training command" they would form the nucleus of the joint training establishment in the same way that they do for their individual service tactical training programs. Such a joint command would be organized to act as the interface between unified command joint training requirements and service tactical training centers and schoolhouses.

Joint Exercise System. Joint exercises, the majority of which fall under the purview of either the Chairman, Joint Chiefs of Staff or the unified Commanders-in-Chief,

are generally large in scope and limited in their degree of joint integration. Team Spirit, an annual joint-combined exercise conducted in the Republic of Korea and vicinity, and PACEX 89, a Pacific-wide joint exercise held in the fall of 1989, are excellent examples of large scale joint exercises where joint interaction is actually minimal.

Large single service forces or combinations (Navy-Marine, Army-Air Force) operate in proximity to one another but with little in the way of operational integration, other than deconfliction by time and space of each's activities. Very often the greatest interaction occurs when one service's forces play the role of "opfor".

These natural combinations of Army-Air Force and Navy-Marines, do, in fact, provide the core of our defense capabilities. Nevertheless, where a need exists to exercise across these traditional boundaries, it is rarely accomplished, being instead left to the short-term demands of actual operations.

Ad Hoc Joint Training. Oftentimes the most practical and beneficial joint training is developed or occurs ad hoc, generally on a unit-to-unit basis. A series of special operations insertion exercises, designated "Chili Flag", fit into this category. Conceived at the unit level and without Special Operations Command sponsorship, these exercises fulfill Navy SEAL, Army Special Forces and Air Force Special Operations Wing training needs while focusing on joint operational requirements.²

Similar endeavors have produced innovative Navy-Air Force maritime strike tactics and training evolutions. However, since these efforts are usually based at the unit level and reflect individual operations and training officer initiative, they often culminate when these individuals transfer. Institutionalized operational and training requirements then reemerge.

Tactical Unit Evaluations. Tactical unit evaluations, such as operational readiness inspections (ORI's) or advanced tactical assessments (ATA's) monitor unit tactical proficiency and set the standards for tactical training programs. These evaluations overwhelmingly reflect individual service requirements and test the capability to conduct operations independently rather than jointly.

Among Naval War College students who were Desert Storm participants, surveyed during the Fall Trimester 1991, less than 20 percent said that their service's tactical unit evaluations assessed joint operations capabilities and knowledge. Even among those with joint requirements only the Army's 82nd Airborne Division evaluated joint interoperability in any significant way, obviously due to their role as a primary contingency force.

Intraservice and Interservice Interoperability. The common tactical requirements imposed by North Atlantic Treaty Organization (NATO) commitments have the salutary effect of improving the interservice interoperability of those units tasked with NATO responsibilities.³ In stark

contrast are the substantial procedural differences which exist between Atlantic and Pacific fleet units and even between amphibious ready groups (ARG's) and carrier battle groups (CVBG's) within the same fleet.

Tactical and procedural differences between the Atlantic and Pacific fleets have long been a fact of life, minimized for the most part by limited interaction. Integrated operations in the Persian Gulf during the recent conflict gave renewed emphasis to the need to standardize procedures and tactics between the fleets. Navy tactical doctrine, unlike its strategic doctrine (i.e. - the Maritime Strategy), has been characterized as "disparate" and "piecemeal".⁴ The development of tactical guidance which maintains a requisite level of commonality between fleets and across warfare community lines is necessary in order to realize the optimum measure of intraservice interoperability. A dedicated effort to remedy this shortcoming has recently been inaugurated by the Chief of Naval Operations, Admiral Frank B. Kelso.⁵

Amphibious ready groups and carrier battle groups rarely integrate operations during a predeployment training cycle but come together only for major exercises. Both operational and training patterns seemingly function on the assumption that these forces will execute their own roles independently rather than in concert. The longstanding requirement to maintain a carrier battle group in the Indian Ocean for considerable lengths of time has helped foster

this situation since those regional contingency requirements primarily emphasized a strike warfare capability.

Admiral Kelso, in conjunction with his counterpart, Air Force Chief of Staff, General Merrill A. McPeak, has taken a first step towards redressing some of the interoperability problems which plagued Navy-Air Force operations during Desert Storm. A Memorandum of Agreement between the two services established a Navy-Air Force board to review "relevant interservice issues" with the overall goal of providing "operational commanders flexible and interoperable forces, supported by appropriate joint doctrine, tactics, techniques, and procedures."⁶

The initial board agenda, scheduled for September 1991, included the coordinated development of Joint Force Air Component Commander (JFACC) procedures, the feasibility of a single jet fuel for Navy and Air Force aircraft, commonality of air dropped munitions and the increased integration of training exercises, among others.⁷ While the focus of some issues centered more upon equipment commonality, there is clearly an attempt to redress differences in tactics and procedures. The direction of this effort is encouraging in that it attempts to address two of the underlying weaknesses in joint interoperability - lack of joint tactics, techniques and procedures and limited joint interaction in supposedly joint exercises.

The Joint Operations and Doctrine Branch of the Office of the Chief of Naval Operations (OP-607) is the Navy's

interface for joint operational and doctrinal issues. Its charter was recently expanded to reflect the necessary connection between operations and doctrine.⁸ With a complement of seven officers, led by a relatively junior captain (O-6), it lacks the seniority and joint expertise to be truly effective in promoting the Navy's joint integration efforts.⁹

Persistent Service Bias. Long-running turf battles over service roles and missions and a share of the budget pie shape attitudes which work against effective joint integration. Fear of setting a precedent which could adversely impact the institutional perquisites of one's service often prevents joint initiatives from taking hold.

General Colin Powell, Chairman of the Joint Chiefs of Staff, proposed in December 1990 to revamp and streamline the present unified command plan, basing his design upon a reduced force structure and concomitantly less demanding worldwide requirements. His proposal was greeted by a commentary in the U. S. Naval Institute Proceedings entitled "Heads Up, Navy" which succinctly pointed out that Powell's plan would, in effect, give short shrift to the Navy's roles and missions, to the advantage of the other services, especially the Army.¹⁰ Such an attitude is definitely not unique to the Navy; witness the considerable body of opinion in the Air Force that feels their own service chief, General McPeak, is too joint in his perspective.¹¹

Countering such pessimism regarding the need for, and motivations behind, joint initiatives is a growing body of opinion, reflected in professional journal articles and commentaries that recognizes service parochialism works to the detriment of our overall military capability.¹² In pressing the need for better Navy-Marine integration W.C. Gregson makes the point that, "It is important to note that nothing being integrated loses its separate identity. Integration does not mean homogenization of the Navy and Marines."¹³ This concept applies equally well across the entire spectrum of joint operations.

The obvious need to foster a joint perspective is behind the Goldwater-Nichols requirement that designated joint billets belong to only joint commands and agencies. How this actually works to inhibit jointness at the service level will be examined later in this paper.

Towards Systematic Joint Training. An ordered method for fostering joint tactical capabilities is well within the capacities of the present service-dominated training system. Development of joint tactics, techniques and procedures can be accomplished through a coordinated effort involving the repositories of service tactical knowledge, the tactical schoolhouses. Schoolhouse and unit training can be restructured to reflect the joint warfighting requirements of the unified commands. Joint exercises can realistically integrate disparate but complimentary service capabilities as they would be employed in actual operations.

Joint officer personnel policy could be easily modified to permit joint-trained and qualified officers to serve in key service billets which impact on how joint forces are organized and employed. Interservice officer exchange programs could be modestly expanded with a substantial payoff in expanded interservice appreciation of tactics and capabilities by making other service tactical expertise readily available throughout operational units. These exchange officers would be a fertile source of expertise upon which to draw when developing or refining joint tactics, techniques and procedures.

Both joint and service lessons learned systems can be modified to provide rapid and widespread access to tactical lessons learned. All the services could implement a remedial action program, similar to the joint system now in place, to rectify identified weaknesses in tactics and procedures. The tools to improve joint training exist largely within the current system and need only be utilized in an imaginative way.

CHAPTER III NOTES

- 1 Pearson interview.
- 2 Jeffrey P. Rhodes, "Special Operations Live," Air Force Magazine, June 1990, pp. 36-38.
- 3 Pearson interview.
- 4 Jeremy D. Taylor, "Unity Amidst Chaos," U.S. Naval Institute Proceedings, May 1990, p. 160.
- 5 Interview with Commander Gary Lennon, Commander Naval Surface Force, Atlantic Fleet Staff (Doctrine and Tactics), Norfolk, VA: 2 October 1991.
- 6 Office of Chief of Naval Operations, Memorandum of Agreement on Joint USN/USAF Efforts for Enhanced Interoperability and Cooperation, (Washington: 1991), p. 1.
- 7 Office of Chief of Naval Operations, p. 2.
- 8 Joint Operations and Doctrine News, (Washington: Office of the Chief of Naval Operations, Joint Operations and Doctrine Branch (OP-607), Summer 1991), p. 2.
- 9 Pearson interview.
- 10 J.C. Wylie, "Heads Up, Navy," U.S. Naval Institute Proceedings, May 1991, p. 17.
- 11 Interview with Lieutenant Colonel Fleming, Joint Chiefs of Staff, J-7 (Operational Plans and Interoperability Directorate), Joint Exercise and Training Division, Washington, DC: 30 September 1991.
- 12 See Susan J. Flores, "Let's Play Ball," Marine Corps Gazette, October 1990, pp. 60-61; Jeffrey D. Jore, "MR Letters: Combined Services, Not USAF, Are Kings," Military Review, August 1991, pp. 96-97; and Anthony M. Corrales, "MR Letters: Air Power Not Decisive at Operational Level," Military Review, August 1991, p. 97.
- 13 W.C. Gregson, "Blue-Green Is a Primary Color," U.S. Naval Institute Proceedings, April 1991, pp. 55.

CHAPTER IV

REVISING JOINT OFFICER PERSONNEL POLICY

Goldwater-Nichols Requirements. In addition to mandating education requirements for joint-designated officers, the Defense Reorganization Act of 1986 directed that joint duty credit be given only to those officers who had served in a joint duty assignment and specifically excluded "assignments within an officer's own military department."¹ Tour length requirements were subsequently reduced from three and one-half years to three years with a lower limit of two years for those officers designated as critical occupational specialists (COS).²

The Act additionally stipulated that in order to be eligible for promotion to flag rank (brigadier general or rear admiral (lower half)) an officer must have served in a designated joint duty assignment. This requirement may be waived if the officer's initial flag assignment is in a designated joint duty billet.³ The size of the list of approved joint billets, designated the Joint Duty Assignment List (JDAL), is a direct reflection of this mandate.

Joint Duty Assignment List. Originally envisioned to include between 5,000 and 6,000 billets, the Joint Duty Assignment List has swelled to over 8,300 billets, primarily in response to the flag officer promotion requirement.⁴ Driven by this provision, the JDAL has developed into a highly political document, with commands attempting to

include the maximum number of billets on the list, based upon the assurance that any billet so designated will be filled with a quality officer.⁵

The Joint Duty Assignment List has accordingly become a key weapon in a competition for a limited number of talented officers. A number of in-service billets, including key operational staff positions, have historically been filled only with officers who had finished their command tours. These billets must now compete for qualified officers with billets on the Joint Duty Assignment List. Joint commands, which prior to Goldwater-Nichols were not likely to get the "top cut" of naval officer, now jealously guard the status of any billets included on the Joint Duty Assignment List.

There are only roughly 100 post-command commanders (O-5's) available each year to fill a much larger demand for such officers.⁶ Postulating that the in-service requirement for post-command commanders exists almost exclusively in Critical Occupational Specialist (COS) communities (Surface Warfare, Submarine Warfare, Special Warfare and Aviation) provides the basis for an inexact but fairly reliable comparison. There is an annual requirement for 166 Navy O-5's from these communities to fill joint duty billets⁷, all of which, admittedly will not require post-command officers, compared to a resource pool of roughly 100 post-command officers. Thus, without even beginning to satisfy in-service requirements, at the very least, a significant percentage of the resource pool will be devoted to filling

Joint Duty Assignment List billet needs. The significance of such rough mathematics is that there is too little talent to satisfy the demand, now inflated by Joint Duty Assignment List requirements.

The size of the Joint Duty Assignment List is obviously a matter of some controversy and will continue to be so, especially in view of the current force structure drawdown. The uncertainty over whether U.S. military force structure will decrease further beyond the targets set for Fiscal Year 1995 is certain to hinder any objective analysis of the "ideal" size of the list. If and how the Joint Duty Assignment List will be reduced to reflect force structure reductions remains to be seen.

Interservice Officer Exchanges. A potentially valuable program which has languished in the shadow of the new joint duty requirements is the interservice officer exchange program. A moderately expanded and properly managed exchange program at the operational level has the capacity to facilitate increased interoperability and enable a more rapid development and refinement of joint tactics, techniques and procedures (JTTP).

Governed by a Memorandum of Understanding (MOU) between the services, there is a great deal of variance in participation between and within each of the services. In examining aviation officer exchange programs between the Air Force and the Navy and Marine Corps, respectively, the percentages of billets filled differ greatly. Of 55 billets

Navy-Air Force billets, only 32 are currently filled⁸ while seven of eight Marine Corps-Air Force billets are utilized.⁹ Moreover, although there is an effort to ensure reciprocity between the Navy and Air Force there is some numerical overlap -- only 20 Air Force officers are serving in exchange billets with the Navy.¹⁰

There are several reasons for the low Navy-Air Force rate:

- Most unfilled billets are, by mutual agreement, flying jobs due, to a lack of training slots in some aircraft communities. A significant percentage (fifteen of the 32 billets currently filled) are instructional duty, including seven at the U.S. Air Force Academy.¹¹

- Air Force exchange officers compete for sometimes scarce cockpit seats with Navy officers.¹²

- Air Force exchange officers count against a squadron's billet authorization table; one less Navy officer will therefore be assigned.¹³

- There is the potential that an exchange Air Force pilot will fail to get carrier landing qualified, especially at night.¹⁴

- The operational squadron which receives the exchange officer is responsible for initiating the replacement requisition process; often this does not happen.¹⁵

- Navy officers on exchange tours receive "unobserved" fitness reports, which can impede promotion opportunity.¹⁶

None of these problems are insurmountable if suitable emphasis is placed upon interservice exchanges as a useful method of increasing joint interoperability.

Lieutenant Dennis Palzkill in an award-winning essay in U.S. Naval Institute Proceedings, lays out a convincing rationale for establishing a "mini-joint subspecialty" based upon an expanded interservice exchange program. Although the methodology of establishing a separate joint specialist designation alongside the one dictated by Goldwater-Nichols may prove difficult to achieve, the concept itself is extremely sound, for it addresses the key problem in achieving joint integration:

The measure of a good joint program should not be the joint perspective of a handful of senior strategists at the top of the pyramid. Instead, it should be the depth within the using organizations that the program is able to promote the idea of interoperability.¹⁷

A proposal currently being staffed at the service level would give joint duty credit to the "cross department" category (O-4/O-5 billets) of interservice exchanges. A more robust version would include O-3 billets as well, but would require a policy change at the Office of the Secretary of Defense (OSD) and Joint Staff level since the Joint Duty Assignment List currently does not include O-3 billets.¹⁸

A combination of both proposals would provide a requisite level of joint expertise in operational squadrons. The Navy-Air Force exchange program should be expanded to include three or four Air Force officers per Navy or Marine Corps air wing. They would fill slots in parallel aircraft

communities and represent key capabilities (i.e. - fighter, airborne early warning, attack and tactical electronic warfare).

All officers should receive full joint duty credit for these tours which would fit the standard exchange tour profile -- transition training (up to a year) followed by a two year tour in an operational squadron. Full joint duty credit would overcome any stigma attached to exchange tours due to unobserved fitness reports; the Goldwater-Nichols flag selection requirement should easily negate any contrary implication about an officer's potential.

This proposal would add less than 110 total billets to the Joint Duty Assignment List, even at the currently projected number of carrier air wings. Current projections call for a twelve carrier force in 1995; some proposals call for that number to go as low as eight. An equivalent number of general administrative billets could easily be deleted from the Joint Duty Assignment List. The Navy alone has over 100 billets for General Unrestricted Line Officers (who perform general administrative functions) on the Joint Duty Assignment List so such a reduction is definitely achievable.¹⁹

An additional benefit of an expanded interservice exchange program would be to form a cadre of joint operationally experienced officers who could then serve in designated joint billets at the various tactical schoolhouses. Using this expertise base the development and

refinement of joint tactics, techniques and procedures could proceed more rapidly and with greater assurance.

Gulf War Joint Duty Credit. In the aftermath of the Gulf War the Senate Armed Services Committee included a provision in the Senate version of the 1992 National Defense Authorization Act which would award Joint Duty Credit (JDC) to those officers in assignments during Operations Desert Shield, Desert Storm and Provide Comfort which involved "significant experience in joint matters" or "frequent professional interaction" with a different service or allied force. Officers serving in designated joint billets (i.e. - those listed on the Joint Duty Assignment List) accounted for only a few hundred officers serving in the Gulf region.²⁰ The proposal awaits negotiations between House and Senate conferees on the authorization bill.²¹ If adopted, even in some modified form, it would signal a shift in emphasis away from a strictly joint command staff level approach to joint integration.

Department of Defense officials have expressed reservations about awarding carte blanche credit for participating in joint or combined operations, arguing that it would reduce the significance of joint duty experience.²² The philosophical debate over the merits of wartime versus peacetime joint operational experience also illustrates the importance placed by some upon joint professional military education, which is generally required prior to reaching a joint duty assignment.

Joint Duty Assignment List Modifications. As part of an effort to improve the process of joint socialization that joint duty requirements are designed to promote, modifications in the composition and character of the Joint Duty Assignment List would be beneficial. Removing non-operational billets which have little to do with the "integrated employment of land, sea and air forces" (administrative positions, flag aides, etc.) and including interservice exchange tours, possibly limited initially to the cross department category (O-4/O-5), would emphasize joint operational expertise as the primary goal of joint duty.²³

A second, and equally important step, would be to partially remove the legislative restriction on serving within one's own military department while in a designated joint duty billet. The primary advantage to this approach would be to provide Joint Professional Military Education and some level of joint socialization to key officers who have enormous impact on the ultimate success of joint operations. Numbered fleet and battle group chiefs of staff and operations officers, commanding officers and key staff members of tactical schoolhouses, numbered air force operations officers and composite wing commanders, and service headquarters joint directorate personnel (OP-607 for the Navy) would all be ideal billets for inclusion on the Joint Duty Assignment List.

The own-service restriction has two detrimental effects which work to impede successful joint integration. It removes officers serving in key component operational billets from consideration for flag rank unless they have previously met joint duty requirements, thereby decreasing the quality level of these officers. Its also puts an officer with little or no formal joint training in a billet which demands both a knowledge of, and an appreciation for, joint operations. Either by dearth of knowledge or lack of joint socialization, an officer in an important service operational billet can impede smooth joint integration. Some of these component operational billets warrant consideration as critical joint billets, to be filled only by a Joint Specialist Officer (JSO). Designation of these billets as joint duty will promote, rather than impede, joint integration efforts by facilitating service implementation of joint goals.

A secondary effect of such an approach would be to enlarge the selection pool for flag rank by permitting a larger number of officers to fulfill joint duty requirements.²⁴ This, in turn, would reduce the number of waivers required for flag-selectees who have not previously served in a joint duty billet -- and are then required to serve in a flag-level joint billet as their first flag assignment.

In combination, an expanded interservice exchange program with corresponding joint duty credit and a

modification of the restriction against own-service joint duty can go far in accomplishing the goal of greater joint integration at the operational level. By broadening the base of joint education and experience the process of joint socialization can begin to take hold within the services themselves. Operating with elements of another service would then become a frequent occurrence, implemented by service members who understood and supported the overall goals of joint cooperation and made commonplace by the development and use of joint tactics, techniques and procedures.

CHAPTER IV NOTES

- 1 U.S. Laws, Statutes, etc., p. 1030.
- 2 Center for Naval Analyses, Analysis of the Size of the Joint Duty Assignment List, CRM 89-293 (Alexandria, VA: 1990), p. 1.
- 3 U.S. Laws, Statutes, etc., p. 1032.
- 4 Center for Naval Analyses, p. 1.
- 5 Telephone conversation with Commander Douglas Rhoulstone, Bureau of Naval Personnel (PERS-2JJ), Washington, DC, 20 September 1991.
- 6 Rhoulstone telephone conversation.
- 7 Center for Naval Analyses, p. 11.
- 8 Telephone conversation with Lieutenant Commander Steven Linnell, Bureau of Naval Personnel (PERS-134E1), Washington, ODC. 18 September 1991.
- 9 Telephone conversation with Major David Baarclaugh, Headquarters Marine Corps, Manpower and Reserve Affairs, Washington, DC. 20 September 1991.
- 10 Linnell telephone conversation.
- 11 Linnell telephone conversation.
- 12 Telephone conversation with Chief Snyder, U.S. Air Force Manpower Personnel Center (Joint Assignment Branch), Randolph Air Force Base, TX. 18 September 1991.
- 13 Snyder telephone conversation.
- 14 Snyder telephone conversation.
- 15 Snyder telephone conversation.
- 16 Pearson interview.
- 17 Dennis Palzkill, "Making Interoperability Work." U.S. Naval Institute Proceedings, September 1991, p. 54.
- 18 Rhoulstone telephone conversation.
- 19 Center for Naval Analyses, Analysis of the Size of the Joint Duty Assignment List, CRM 89-293 (Alexandria, VA: 1990), p. 7.

- 20 Grant Willis, "Joint-duty credit for Gulf service could ease climb to flag," Navy Times, 19 August 1991, p. 4:1-3.
- 21 Rick Maze, "Pentagon at odds with Senate over joint-duty credit from war," Navy Times, 30 September 1991, p. 20:1-5.
- 22 Maze, p. 20:1-5.
- 23 Rhoulstone telephone conversation.
- 24 Center for Naval Analyses, p. 15.

CHAPTER V

EXERCISING JOINTLY

How "Joint" Are Joint Exercises? As discussed in Chapter III, joint exercises, with infrequent exceptions, feature forces from two or more different services but offer little more than a modicum of joint interaction. This contrasts sharply with the requirements for joint integration imposed by actual operations, which are bound to become more rigorous in the wake of large scale force structure reductions. The solution to this dichotomy lies in revising and updating the currently disparate and uncoordinated method of training joint forces.

Current Joint Exercise System. The unified commander has been granted by Goldwater-Nichols the capacity to exercise an unprecedented level of control in achieving operational goals in support of national policy. Depending upon the situation he can expect to augment his permanently assigned forces with those belonging to another unified command. While he has the capability to compose the force structure he needs and to control it as he desires, his capacity to train his forces for joint operations is somewhat limited, for a variety of reasons.

Partly to blame is a system which confers too much discretion upon the individual unified commands in devising and implementing a coordinated joint training plan.

Chairman, Joint Chiefs of Staff Memorandum of Policy 26

(CJCS MOP 26), Joint Training Program, directs unified Commanders-in-Chief to "provide authoritative direction to subordinate commanders regarding all aspects of joint training". Joint training requirements are to be documented in an independently-derived Joint Mission Essential Task List, which is in turn based on the requirements imposed upon that unified command in the Joint Strategic Capabilities Plan (JSCP).¹

By giving each unified command the authority to independently derive the terms of reference for joint training, some degree of divergence between unified commands is guaranteed. That is exactly what has happened in practice. The specificity of joint training requirements as detailed in Joint Mission Essential Task Lists differs, to a greater or lesser degree, among the unified commands.² Since many subordinate component commands have overlapping unified command responsibilities and unified commands are often tasked to provide forces to each other, disparities among joint training standards is bound to produce variances in joint operational capabilities.

Joint Mission Essential Tasks contain two underlying levels -- supporting tasks and enabling tasks. Supporting tasks consist of "specific activities that contribute to accomplishment of [a] JMET"; enabling tasks are "more specific activities and objectives to be accomplished during training events".³ Of the two, it is the enabling task which dictates in specific terms how joint tactical training

should be accomplished and it is this area that is just beginning to receive attention at Joint Staff and unified command level.⁴

The Chairman, Joint Chiefs of Staff Joint Training Manual stipulates that "when similar supporting tasks exist between two or more CINC's, a common terminology will be developed and coordinated by [CJCS]".⁵ No similar adjustment is mandated for differences in enabling task terminology or description. Since this level has the greatest potential impact for improving joint training, uniform enabling task terminology offers substantial dividends by fostering common joint training standards.

Master Joint Mission Essential Task List. A master Joint Mission Essential Task List should be developed which would provide for common terminology and descriptions down to the enabling task level. Discretion as to which Joint Mission Essential Tasks, supporting tasks and enabling tasks are necessary to accomplish Joint Strategic Capabilities Plan (JSCP) taskings should be left to the individual unified Commander-in-Chief (CINC).

A Chairman, Joint Chiefs of Staff-sponsored task force should be commissioned in order to develop this list. In addition to representatives from the unified commands, key service training authorities should also be included. Navy representatives should include experts from the Atlantic, Pacific and numbered fleets as well as type commanders (surface, submarine, aviation) and the tactical schoolhouses

(i.e. - Naval Strike Warfare Center, Navy Fighter Weapons School, Tactical Training Groups Atlantic and Pacific, etc.).

Among the key goals of such a task force would be to identify those supporting tasks which are inherently joint in nature and those which have a possibility of involving joint forces. Differences in service tactics and procedures in areas such as offensive counterair (OCA) or electronic warfare demand such an approach. Unless the necessity to train to a common joint standard is identified, supporting and enabling task training will continue to emphasize differing service tactics and procedures. The requirement may very well exist to train to both service and joint standards in order to meet certain Joint Mission Essential Task goals.

Depending on the tactical situation, differing single service tactics and procedures for a supporting task may be more than justified. In such cases, it is especially important to differentiate joint from service training requirements. In general, current listings of supporting tasks fail to make that distinction. A master supporting task listing would overcome this shortcoming.

Another benefit of a master Joint Mission Essential Task List would be to formally identify those areas where joint techniques, tactics and procedures (JTTP) need to be developed or formalized. The construction of a detailed listing of enabling tasks would also serve to identify the

specific types of training events where joint techniques, tactics and procedures should be exercised.

A problem currently being grappled with in Joint Mission Essential Task List development that could quite profitably be addressed by a CJCS-sponsored task force is that of training frequency requirements.⁶ How often a specific Joint Mission Essential Task, supporting task or enabling task needs to be exercised and when sufficient competency is achieved is an involved question. Service training experts can be profitably utilized in this process since there are well developed service cyclic training matrixes which, in many cases, would seem to translate well to joint training, especially at the enabling task level.

The advantages of a CJCS task force-generated master Joint Mission Essential Task List are numerous:

- A common joint training standard in the form of a master Joint Mission Essential Task List will help promote joint interoperability by minimizing conflicting interpretations of joint interoperability requirements at the component level.
- Duplication of effort among unified command staffs is eliminated.
- Realistic constraints, such as the availability and cost of training resources, could be readily identified and factored into frequency requirements.

Service Joint Training Responsibilities. A product of a master Joint Mission Essential Task List would be to drive

much of the responsibility for joint training down to the component level. A significant amount of joint tactical training would be accomplished as a result of requirements laid out in enabling tasks in smaller but more frequent exercises, termed "training events", which could be easily organized and executed at the component unit level.

Enabling task training requirements would be reflected in unit cyclic training matrixes for applicable units in all services. Staff-level coordination and approval would be eliminated since unit participation would be required at some point in their training cycle.

Thus an EA-6B squadron could be pursue EF-111 or F-16 participation in a small-scale Joint Suppression of Enemy Air Defenses (JSEAD) exercise without concern for higher headquarters approval since both units would have a similar, if not identical, training requirement. A sample enabling task for Joint SEAD might require semiannual or quarterly joint training missions (with two to four electronic warfare aircraft only) against radar simulator targets. An annual requirement to conduct larger scale strikes during coordinated air wing training operations would also be part of the enabling task.

Navy air wing training operations at Naval Air Station Fallon, Nevada or Air Force composite wing operations at Nellis Air Force Base, Nevada (during a Red Flag exercise) would be ideal scenarios for such larger scale training. Navy or Air Force air wing cyclic training matrixes would

similarly include Joint SEAD as a joint training requirement so squadron and wing-level training requirements would act to reinforce one another. Frequency requirements would be coordinated so joint training goals would be achievable during a typical training cycle.

Large Scale Joint Exercises. With a systematic and logical master Joint Mission Essential Task List in place, including enabling tasks which supported a series of smaller scale joint tactical training events, it would then be possible to realistically exercise jointly on a large scale. What are now contiguous single service exercises could be conducted on a truly joint basis. Roughly the same degree of planning and preparation as single service exercises would be required for joint exercises which would feature much less pre-scripting.

Coordinated Joint Training Plans. Close and continuing unified command coordination of Joint Training Plans is essential in a cost-constrained training environment. A forum does exist for this purpose -- the CINC Exercise Scheduling Conference; however, it meets on only an annual basis which limits its responsiveness to evolving training requirements.⁷ The need to "combine, consolidate, or at least more closely coordinate the exercises of multiple CINC programs" has been recognized and is receiving Joint Staff and unified command attention.⁸ As funding levels continue to decline this need will become ever more urgent.

Overlapping component unified command support requirements necessitate close coordination of exercise schedules and training plans in order to avoid duplicating Joint Mission Essential Task completion. For example, the Central Command does not own dedicated naval and marine forces and relies on the Atlantic and Pacific Commands to supply such forces. The necessity to exercise certain supporting and enabling tasks in a Central Command exercise would be obviated if the forces concerned had previously fulfilled the requirement in an Atlantic or Pacific Command joint exercise and frequency requirements continued to be met.

Commander-in-Chief America/Contingency. An ever-widening loophole exists in the CJCS Joint Training Program Memorandum of Policy (CJCS MOP 26) stipulation that unified commands provide direction in all aspects of joint training to their component commands -- by 1995 two-thirds of all Air Force and Army tactical forces will be based in the continental United States, not assigned to a unified command and thus without authoritative direction on joint training.⁹ This has implications for Navy and Marine joint training as well since coordination and scheduling of joint training with these Army and Air Force units would be more difficult. The advantages of a master Joint Mission Essential Task List will be lost if a substantial portion of U.S. forces are excluded from its strictures.

A unified command based in the continental United States with responsibility for those forces not already allocated to another unified command would redress this shortcoming. Although the Central Command may have previously been a candidate to fill this vacancy, the recent Persian Gulf conflict and ensuing uncertainty argues against modifying its regional responsibilities. Formation of a totally new unified command or more logically, expanding the responsibilities of the Army's Forces Command would accomplish this goal. Early movement toward this objective is necessary in order to ensure that units returning from overseas bases remain under a joint training plan.

Lessons Learned in Exercise Planning. Despite recent emphasis on developing and implementing both joint and service lessons learned systems, the ironic fact is that although lessons learned readily flow from joint operations and exercises, the reverse is seldom true. Although generally dictated by the exercise directive, the use of lessons learned, including Joint Universal Lessons Learned (JULLS) and service lessons learned, as an exercise planning tool is uneven at best.¹⁰ This may be, in part, due to the lengthy and structured joint exercise development process, itself heavily influenced by budget submission requirements. Like the budget process, it rolls ever forward, propelled by its own inertia.

Joint Exercise System. The joint exercise system, managed in much the same manner as any other Department of

Defense program, is hostage to the system which heavily influences the dynamics of all such programs. The six year Planning, Programming and Budgeting System (PPBS) cycle is directly reflected in a parallel six year CJCS and unified command exercise system. Initial exercise concepts are developed and tentative forces lists drawn up as much as six years prior to their execution in order to meet the requirement to identify funding. Two to three years prior to an exercise, force list assignments are firmed up.¹¹

Following Operations Desert Shield and Desert Storm, the need to pause, reappraise and adjust the joint exercise program was apparent. Yet, exercises in the near term continued to be executed as planned, if the forces remained available. Contributing to this reluctance to cancel or postpone exercises is the tendency of unified commands to promote themselves by publicizing the frequency and number of exercises conducted under their auspices.¹²

The necessity to identify transportation funding, reserve exercise areas, coordinate Host Nation Support (HNS) and allied force participation requires some amount of long range planning. However, a degree of flexibility needs to be injected into the system. Current procedure calls for exercise funds not used during the current fiscal year (i.e. - during "program execution") to revert back to the control of the Joint Staff -- to make up shortfalls or fund high priority requirements.¹³ Perhaps a certain percentage of each year's joint exercise budget, maybe twenty to thirty

percent, could be allocated "off the top" to Joint Staff control in order to fund short term requirements. This would provide the Joint Staff and the unified commands a greater margin of flexibility and lessen the need to forecast exercise funding requirements with such certainty years prior to execution.

Common joint training standards in the form of a master Joint Mission Essential Task List containing detailed supporting and enabling tasks is an important first step in improving joint exercise training. Once in place, a large part of joint exercise requirements could be conducted in component-level coordinated training events which stress Joint Techniques, Tactics and Procedures (JTTP's). Large scale joint exercises could then focus on truly joint supporting tasks. Coordination requirements would be lessened because of the interservice familiarity gained during frequent joint training events.

Close coordination of Joint Training Plans among unified commands, including a unified command with continental United States responsibilities, would limit duplication and maximize the utility of their joint training efforts. A revised exercise funding system managed more closely at the Joint Staff level would inject flexibility into what is now an unnecessarily unwieldy and inflexible program.

CHAPTER V NOTES

- 1 Office of the Chairman, Joint Chiefs of Staff, Joint Training Program, CJCS MOP 26 (Washington: 1990), pp. 8-10.
- 2 Interview with Lieutenant Colonel McAteer, U.S. Atlantic Command J-34 (Exercise Planning), Norfolk, VA: 2 October 1991.
- 3 Office of the Chairman, Joint Chiefs of Staff, Joint Training Manual, MCM 59-91 (Washington: 1991), p. II-3.
- 4 Fleming interview.
- 5 Office of the Chairman, Joint Chiefs of Staff, Joint Training Manual, p. II-3.
- 6 Interview with Lieutenant Commander Jay MacKercher, U.S. Atlantic Command, J-34 (Joint Training Plan), Norfolk, VA: 2 October 1991.
- 7 Office of the Chairman, Joint Chiefs of Staff, Joint Training Manual, p. III-7.
- 8 Joint Staff, Worldwide Joint Training Conference Hotwash (Memorandum) (Washington: 24 September 1991), p. 7.
- 9 Fleming interview.
- 10 MacKercher interview.
- 11 Telephone conversation with Major Craig, Tactical Air Command DOXE (Exercise Coordinator), Langley Air Force Base, VA. 23 September 1991.
- 12 Craig telephone conversation.
- 13 Office of the Chairman, Joint Chiefs of Staff, Joint Training Manual, p. III-5.

CHAPTER VI

UTILIZING LESSONS LEARNED

Joint Center for Lessons Learned. The Joint Center for Lessons Learned is tasked "to enhance combat effectiveness and interoperability by collecting and disseminating lessons with joint significance from joint operations, exercises and other sources".¹ Actually not a separate command but an integrated people, hardware, software and data base system operated by the Joint Staff (Evaluation and Analysis Division of J-7, Operational Plans and Interoperability Directorate²), it is focused primarily on staff level and acquisition issues. Although it does address tactical lessons learned to a limited degree, it was designed as a "pool of information with joint significance... [which] may eventually contribute to the development of separate joint doctrine"³, but not joint tactics or procedures.

The Joint Universal Lessons Learned System (JULLS), the software program which generates and manages the lessons learned data base, has proven quite effective in collecting lessons learned; the reverse process has not achieved the same degree of success. Distribution of master lessons learned data base updates, made quarterly, are limited to what are termed JCLL principals -- the unified and specified commands and the services.⁴ Further distribution to tactical units is the responsibility of the services.⁵ Although individual commands may access the refined data

base via secure telephone (STU III), mail or the Worldwide Military Command and Control System (WWMCCS) Intercomputer Network (WIN), these procedures are lengthy and inhibit frequent access.⁶

Limited user access to the Joint Universal Lessons Learned data base will work to limit unit level enthusiasm for the program and its goals. Frustration over the JULLS workload volume generated in the aftermath of Operations Desert Shield and Desert Storm⁷ is not a new circumstance. The significant effort required to feed lessons learned into the system demands a parallel effort to ensure widespread access to the data base. As long as data base distribution is limited to higher headquarters and staffs, the product, in the form of the refined data base, will continue to reflect issues of staff level interest and concern.

The solution, as in many cases, involves money. The Joint Staff is not funded to monitor the distribution of the literally thousands of data base updates needed in order to make the system truly effective. Consequently it has left the responsibility of ensuring user level distribution to the services; the result being that the Joint Universal Lessons Learned System is less than universal.

A minimum mandatory level of distribution, by command type, needs to be required with the services bearing the increased burden in cost. In looking at Navy requirements, each operational (vice training) aircraft squadron or ship probably does not require its own copy of the refined data

base; the ship squadron or carrier air wing at the next level of command would seem to be the appropriate location for data base maintenance or access. By funnelling joint lessons learned back to the tactical users, the system itself will begin to take on a more tactical outlook, especially as joint operations and exercises increase.

Remedial Action Projects Program. An effective and arguably the most useful component of the Joint Center for Lessons Learned is the Remedial Action Projects Program. Utilizing exercise or operational after-action reports as well as other sources, the program identifies "shortcoming[s] in existing policies supporting strategies, plans, procedures, materiel, or forces that may be corrected by specific action" and assigns responsibilities for corrective action which are then tracked to completion.⁸

Problems are grouped in five categories:

- Remedial Action Project (RAP), a "major problem with joint implication that can be corrected through specific action by the Joint Staff, Services, unified or specified commands, OSD, combat support agencies, or other Federal agencies".⁹

- Single Agency Item (SAI), pertaining to only a single agency or service and thus not tracked at the Joint Staff level.¹⁰

- Procedural Item (PI), identifies problem areas for training and command attention. In-place procedures existed but were not followed.¹¹

- Exercise Item (EI), pertains only to exercise design or management.¹²

- Noted Item (NI), does not require corrective action or an in-place program is already working on the problem. This category is also used to document tactics, techniques and procedures which have worked well.¹³

Categories which would be particularly useful to operational units in planning and executing exercises and operations are Procedural Items, Exercise Items and Noted Items. Noted Items have great applicability in developing and refining Joint Tactics, Techniques and Procedures (JTTP's) or limiting coordination problems where JTTP's do not yet formally exist.

A prominent feature of the program, included in 1989, is the requirement that the Office of Primary Responsibility (OPR), that service, command or agency assigned corrective action, must validate the solution. usually in an exercise, prior to closure. A flag officer or equivalent must then formally verify that the corrective action is complete.¹⁴ This does much to ensure a complete and thorough approach to identified problems.

Navy Lessons Learned System. The Navy Lessons Learned System (NLLS) was established to provide widespread fleet "access to lessons learned from contingency and real-world operations, exercises, war games, and tactical studies."¹⁵ The system uses the Navy Instructional Input Program (NIIP) software, which is fully compatible with Joint Universal

Lessons Learned System software, to input both Navy-only and joint lessons learned.¹⁶

As currently structured, the Navy Lessons Learned System has several notable shortcomings:

- No Remedial Action Projects (RAP) program.
- No central validation site to screen and validate submitted lessons learned.
- Limited system computer hardware commonality.
- No formal interface with other service lessons learned systems.

With no formal way to identify, assign and track remedial action projects, the Navy Lessons Learned System is limited to being a information exchange system. Given the past history of dissimilar procedures and tactics between fleets and warfare communities, the very real potential exists for uncoordinated and possibly conflicting solutions being developed for similar or identical problems.

Shortcomings need to be identified in a coordinated fashion and Navy-wide solutions developed and tracked to completion.

Validation sites are split between operational commands (e.g. - major and numbered fleets), tactical schoolhouses (e.g. - Naval Strike Warfare Center, Navy Fighter Weapons School) and dedicated warfare commands (e.g. - Mine Warfare Command, Surface Warfare Development Group). There is no clear cut division of responsibility between the various validation sites so overlap and duplication are bound to occur. Most importantly, there is no central site to

adjudicate conflicts in interpretation, although the Commanders-in-Chief of the Atlantic and Pacific fleets and Naval Forces, Europe "are responsible for approval by negation of all lessons learned".¹⁷ In practice this likely means that one or two action officers, probably O-5's, will screen all inputs from subordinate commands, which don't generally include the tactical schoolhouses and dedicated warfare commands assigned as validation sites. Moreover, no formal means of coordination between these "approval authorities" is in place.

A Navy Lessons Learned Steering Group includes only representatives of major and numbered fleet commands, the Office of the Chief of Naval Operations Tactical Readiness Division (OP-73, the program sponsor) and a non-voting representative from the Navy Tactical Support Activity, which acts as the Collection and Distribution Center for the Navy Lessons Learned System. Determination of direction, policy and procedures is made at periodic meetings of the Steering Committee.¹⁸

A central validation site, similar to the Marine Air Ground Task Force Warfighting Center, which performs that function for the Marine Corps Lessons Learned System, would be a valuable tool in ensuring the utility of the entire lessons learned system. A Naval Warfare Center, a concept which the Navy has long avoided, could perform the central validation site function for the Navy Lessons Learned System as part of its overall role as a central interface between

disparate tactical warfare centers (e.g. - Naval Strike Warfare Center, Surface Warfare Development Group, etc) and as the production center for Navy doctrine.

The Center, similar in concept to the Army's Training and Doctrine Command (TRADOC) and the Marine Corps' Marine Air Ground Task Force Warfighting Center, is acutely needed to give some degree of coherence to Navy doctrine and procedures. The role of the Navy in joint operations is an ongoing task ideally suited to such an institution. Placing the Navy Lessons Learned System under its aegis would add immeasurably to that system's effectiveness. The Center should also be tasked to head a Remedial Action Projects Program, integrated with the Navy Lessons Learned System and to act as the Navy representative to the joint Remedial Action Projects Program Steering Committee.

Representatives from the Center for Naval Analyses should be included as part of a Lessons Learned Section in a Naval Warfare Center. As currently structured, heavy responsibility for validating lessons learned inputs is placed upon staff action officers, often with limited expertise in certain warfare or operational issues. The broadbased expertise and analytical acumen available from CNA is certain to improve the quality and validity of a lessons learned data base.

Hardware support for the Navy Lessons Learned System data base is based on a 20 megabyte 5 1/4" Bernoulli disk; there are plans to replace it with a CD ROM system in the

near future.¹⁹ The difficulty posed by this arrangement is the lack of commonality with currently available desktop systems in operational units and with lessons learned hardware in use with the other services.

The Bernoulli system is rarely seen in fleet units and the hardware for CD ROM is currently limited to ships with SLQ-32 electronic warfare self-defense systems. CD ROM hardware is used in the PC-based Electronic Warfare On Board Trainer (EWOBT) used to support SLQ-32 operator training.²⁰ The need for other ships and squadrons to have such hardware capability to support anything beyond their normal administrative taskings was probably not envisioned. Neither the Bernoulli or CD ROM hardware is compatible with Joint Universal Lessons Learned System or other service (e.g. - Marine Corps Lessons Learned System) hardware requirements. Universal hardware and software commonality among all service and joint lessons learned data bases is necessary to achieve the much espoused goal of not "reinventing the wheel".

Equally necessary to the goal of not repeating past mistakes is some kind of formal interface between individual service lessons learned data bases. The overlap in tactical capabilities between the services leads to the inescapable conclusion that similar mistakes and similar successes in tactical operations occur among the services. The lesson is no less valuable if learned from the experience of another service than from one's own. A formal mechanism to exchange

relevant lessons learned is definitely needed. A working group composed of representatives from each service's lessons learned center, meeting on a quarterly or semiannual basis, could easily fulfill this need. The current practice of service lessons learned action officers is to identify those lessons learned that seem to have other service applicability and forward them on to their counterparts. This makeshift system does not include all the services and lacks any common criteria in screening lessons learned.²¹

Marine Corps Lessons Learned System. The advantages of small service size, a central training and doctrinal review site (Quantico) and skillful imitation of an in-place joint system have combined to make the Marine Corps Lessons Learned System (MCLLS) an enviable standard for a service lessons learned system. Completely compatible with the Joint Universal Lessons Learned System, it uses the Zenith 248 standard desktop computer with a 5 1/4" floppy disk for both lessons learned inputs and data base distribution and updates. Data base updates are distributed quarterly to all Fleet Marine Force units. The system is well-publicized throughout the Marine Corps and is supported by a carefully designed and managed training program. A Remedial Action Projects program is an integral part of the MCLLS system. Items with joint significance are fed into the joint RAP system.²²

JULLS compatibility, service-wide hardware commonality and adequate training maximize the benefit of the system to

the Marine Corps' operational elements, the Fleet Marine Force. Equally effective systems in all the services, interlocked with a formal lessons learned exchange system, would realize equivalent gains for the entire U.S. military and assist greatly in joint integration efforts.

CHAPTER VI NOTES

- 1 Office of the Chairman, Joint Chiefs of Staff, Joint Center for Lessons Learned (Memorandum), MCM 86-90 (Washington: 1990), p. 3.
- 2 Office of the Chairman, Joint Chiefs of Staff, Joint Center for Lessons Learned, pp. 3-4.
- 3 Office of the Chairman, Joint Chiefs of Staff, Joint Center for Lessons Learned, p. 3.
- 4 Office of the Chairman, Joint Chiefs of Staff, Joint Center for Lessons Learned, p. 4.
- 5 Interview with Commander John Howell, Joint Chiefs of Staff, J-7 (Operational Plans and Interoperability Directorate), Evaluation and Analysis Division, Washington, D.C.: 30 September 1991.
- 6 Office of the Chairman, Joint Chiefs of Staff, Joint Center for Lessons Learned, pp. 10-14.
- 7 Joint Staff, Worldwide Joint Training Conference Hotwash (Memorandum) (Washington: 24 September 1991), p. 5.
- 8 Office of the Chairman, Joint Chiefs of Staff, Chairman, Joint Chiefs of Staff, Remedial Action Projects Program (Memorandum), MCM 234-90 (Washington: 1990), p. 1.
- 9 Office of the Chairman, Joint Chiefs of Staff, Chairman, Joint Chiefs of Staff, Remedial Action Projects Program, p. 6.
- 10 Office of the Chairman, Joint Chiefs of Staff, Chairman, Joint Chiefs of Staff, Remedial Action Projects Program, pp. 6-7.
- 11 Office of the Chairman, Joint Chiefs of Staff, Chairman, Joint Chiefs of Staff, Remedial Action Projects Program, p. 7.
- 12 Office of the Chairman, Joint Chiefs of Staff, Chairman, Joint Chiefs of Staff, Remedial Action Projects Program, p. 7.
- 13 Office of the Chairman, Joint Chiefs of Staff, Chairman, Joint Chiefs of Staff, Remedial Action Projects Program, pp. 7-8.
- 14 Howell interview.

- 15 U.S. Dept. of Navy, Naval Warfare Documentation Guide, NWP 0 (Rev. P) (Washington: 1991), p. 4-1.
- 16 U.S. Dept. of Navy, p. 4-3.
- 17 U.S. Dept. of Navy, pp. 4-3, 4-5.
- 18 U.S. Dept. of Navy, p. 4-5.
- 19 U.S. Dept. of Navy, pp. 4-2, 4-3.
- 20 Lennon interview.
- 21 Interview with Major David H. Curry, Marine Air Ground Task Force Warfighting Center, Studies and Analysis Branch, Lessons Learned Section, Quantico, VA: 1 October 1991.
- 22 Curry interview.

CHAPTER VII

SCHOOLHOUSE AND UNIT TRAINING

Overview. Schoolhouse and unit training programs run by the services generally concentrate on single service tactical missions. Recently, partly as a result of problems associated with joint operations in Operations Desert Shield and Desert Storm they have begun to expand their instructional and training focus to include joint issues. The principal emphasis remains on basic mission tactical proficiency on the basis that "one must learn first the integration/employment of one's service before entering the more complex world of joint ops".¹

This approach makes a good deal of sense but only to a point. If resident in-service capabilities can be expected to perform a mission with little or no required interservice cooperation, this perspective is quite valid. The Navy's anti-submarine warfare mission falls within this category. However, diminishing returns are realized when normal operational demands dictate that some degree of joint integration is necessary to fulfill a unit's basic mission. For example, a carrier air wing could not be expected to perform extended long range strike operations without Air Force inflight refueling support. Depending on the target, Navy or Marine Corps tactical electronic warfare aircraft would be needed to support Air Force strike operations.

When joint integration to perform a basic mission becomes essential then completely segregated service training regimens lose their legitimacy. Under the weight of large force structure reductions the services will find a greater proportion of their missions falling within this category. An Air Force tactical training commander summarized it thusly,

From an operational view, the need for knowledge of joint operations is directly proportional to the necessity to use that knowledge in joint operations. As our defense dollars dwindle, we must maintain a credible program which trains our young aviators as well as the more seasoned fliers to be proficient in joint tactical operations lest we find ourselves relying on forces which cannot effectively be brought to bear in a time of crisis.²

A good deal of debate will focus on the issue of when joint operations will be required to perform certain missions. The CJCS-sponsored task force which was proposed in Chapter V to draw up a master Joint Mission Essential Task List would likely be unable to avoid grappling with this issue. A coherent list of joint training requirements that a master Joint Mission Essential Task List would provide will help to define the presently obscure dividing line between service and joint training responsibilities.

Joint Expertise at the Schoolhouse Level. The Goldwater-Nichols statutory prohibition against serving in joint billets in the parent military department works to the extreme detriment of tactical schoolhouse institutions. Although it happens in rare cases, joint experienced officers are not generally included on the staffs of these

commands.³ Exchange officers from other services sometimes serve as instructors but are not eligible for joint duty credit. Briefing teams and guest lecturers from sister services are also used to bridge the cross-service knowledge gap but this is highly dependent on command emphasis.

This lack of joint expertise inhibits informed development of curricula dealing with joint issues. Armed with an overall understanding of how service tactical capabilities should be used to support joint operations, tactical schoolhouses could construct training programs to support this goal. Present accommodations rely on "best guess" analyses and reactions to the "problem of the moment".

Joint Training Initiatives. In an uncoordinated and random but nevertheless earnest fashion, the various tactical schoolhouses are beginning to address the need for joint tactical training and instruction. As mentioned previously there is very little in the way of agreed upon tactics and procedures for these institutions to teach. Without the codified standard that a master Joint Mission Essential Task List supported by developed Joint Tactics, Techniques and Procedures would provide, progress is nevertheless being made.

Despite the complete lack of a common standard for joint training, tactical schoolhouses in all the services have implemented numerous changes to improve joint training. The Naval Strike Warfare Center's Strike Leaders Attack

Training Syllabus (SLATS) course includes classroom material on:

- Joint Forces Air Component Commander (JFACC) responsibilities and staff structure
- joint target nomination process
- development and content of the Air Tasking Order
- combat assessment process.

A Battlefield Operations day on the Fallon range features airwing operations integrated with simulated Air Force units, such as the E-3A Sentry AWACS aircraft and the RC-135 Rivet Joint aircraft. NSWC staff members who fulfill the simulated roles are able to draw upon their actual experience while augmenting the Naval Forces Central Command (NAVCENT) staff in Riyadh during Operation Desert Storm.⁴

Tactics exchanges are commonplace between the Navy Fighter Weapons School and the Air Force Fighter Weapons School and brevity code development is coordinated between the two.⁵ The Army Aviation Center has produced a consolidated list of Federal Aviation Administration (FAA), Air Force, Navy and Army abbreviations, brevity codes and acronyms.⁶ U.S. Air Forces Europe (USAFE) conducts a Tactical Leadership Program which indoctrinates a selected number of aircrew from operational squadrons in joint employment.⁷

Interservice Training Review Organization. The Interservice Training Review Organization (ITRO) is a voluntary effort among the services to achieve economies by

consolidating training. It is not a stand-alone organization but rather works on an Additional Duty (ADDU) and ad hoc basis. Its focus is on individual, primarily technical, training and not operational training. The host service will absorb base support costs while the other participating services will generally contribute instructor resources. The program has a excellent track record for saving money.⁸ Base closures and force structure downsizing have forced the services to look even more closely at consolidating individual training.⁹

Under ITRO's charter, which is a joint service, vice a Department of Defense, regulation, if a service has a requirement for training it should check with the other services before establishing a course of instruction. When two or more services agree that there is a potential for consolidating training, each service will contribute subject matter experts to develop a consolidated syllabus. If a service feels its training needs are not being met by a particular consolidated course it can opt out. ITRO usually reacts to a service proposal to consolidate training rather than solicit such opportunities.¹⁰

Although ITRO deals exclusively with individual, vice unit, training, there are a few select ITRO courses where common procedures can provide a modest plus for joint integration. However, the real contribution that ITRO makes to the joint integration effort is simply the concept of voluntary interservice cooperation in the area of

training. A similar, but separate, organization focused on unit tactical training would yield important benefits in promoting joint operational education and training.

Composed of representatives from service tactical schoolhouses, it would coordinate joint training efforts and could play an important and ongoing role in the development and refinement of Joint Tactics, Techniques and Procedures. Joint training initiatives could be shared and mutually supporting joint training syllabi developed.

Joint Doctrine and Tactics, Techniques and Procedures.

Forced by a lack of Joint Tactics, Techniques and Procedures, tactical schoolhouses committed to increasing operational awareness of joint issues are limited in many circumstances to teaching joint doctrine¹¹. Procedures for generating joint doctrine are deliberate and unhurried -- it can take two years or more to originate doctrine covering a certain area of joint operations.¹²

There is a real need to formalize joint tactics and procedures which have previously been developed on an ad hoc basis into the JTTP system. Although they may not fulfill all tactical requirements in an ideal world, by rapidly integrating them into a structured system they can be refined and modified in an orderly fashion and previous experience is not forfeited.

A forum for initiating this process could be a conference of Navy and Air Force tactical commanders and staff members who participated in Operations Desert Shield

and Desert Storm. This conference could be sponsored by the Navy-Air Force Board recently established by Admiral Kelso and General McPeak with a charter to improve interoperability. A second, and perhaps better, alternative would be for the Joint Staff to sponsor such a conference since all the services could then participate. The important point is that a start needs to be made in codifying joint tactics and procedures and delay only makes the process more difficult and prolonged.

Tactical Schoolhouses as Centers for Joint Tactics Development. Given the lack of Joint Tactics, Techniques and Procedures (JTTP), a coherent strategy should be implemented to develop them. The institutions which fulfill this role on a service level ought to be tasked to take on such a task at the joint level as well. Initial steps in this direction have been taken but need to be expanded. The Naval Strike Warfare Center is currently conducting Tactical Development and Evaluation programs in the areas of Joint Suppression of Enemy Air Defenses (JSEAD) and Joint Electronic Combat.¹³ Translation of these and similar programs into validated joint tactics and procedures is what is needed on a large scale in order to make up a widely acknowledged deficit. The tactical schoolhouses could profitably exploit the base of interim tactics and procedures culled from Desert Storm operational experience.

Use of Lessons Learned. Both joint and service lessons learned data bases are used sparingly in updating course

curricula at tactical schoolhouses. Most rely on "home-grown" lessons learned garnered from student and staff personal experience.¹⁴ One reason has been difficulty in acquiring the requisite data bases -- Tactical Training Group Atlantic spent seven months waiting to obtain the JULLS data base.¹⁵

Utilization of lessons learned based upon student and instructor operational experiences certainly is not detrimental. Nevertheless, data base lessons learned, if applicable, should also be employed. As the various lessons learned systems mature and data base access and input quality and volume increase, their use in updating tactical courses of instruction will hopefully become routine. Tactical schoolhouses should also become important sources for joint and service lessons learned systems. Lessons learned from controlled exercises such as airwing training at the Naval Strike Warfare Center and student inputs will serve to increase the vitality and usefulness of these systems.

Staff and Command Element Training. The interface between components during joint operations is frequently at the staff or command element level. Some officers receive limited instruction in joint operations at service tactical schoolhouses enroute to these assignments. The need to formally improve this area of joint training is generally recognized.

As part of an effort to improve component operational staff joint knowledge and expertise, service tactical schoolhouses, such as the Navy's Tactical Training Groups could host a one or two day course for operational commanders and staff of different services. Navy capabilities and procedures would be covered as well as the Navy role in joint operations. An alternative approach would be to take such a course "on the road" and send staff instructors to those commands. Corresponding short courses provided by other service tactical schoolhouses would increase the knowledge base of all concerned.

A currently utilized approach emphasizes bringing joint expertise to the user -- augmenting component staffs designated as joint task force commanders with a cell from the unified command headquarters.¹⁶ In addition to reinforcing the notion that joint expertise should reside only in joint commands, this method fails to recognize that such a cell would lack a detailed background on theater conditions and assigned component force capabilities. If such augmentation occurs it should be limited to specialized areas of expertise. Tailored joint training programs should be the preferred solution to any perceived lack of joint expertise on component operational staffs.

Increasing Joint Course Accessibility. Throughput at tactical schoolhouses is restricted by school facility size and Temporary Additional Duty (TAD) funding requirements. Facility size determines how many students an institution

can physically handle. TAD funding costs are generally borne by the student's parent command unless he or she is under Permanent Change of Station (PCS) orders; TAD budgets are normally limited and therefore administered frugally. Both factors combine to diminish student throughput.

Rapidly improving technology makes widespread access to joint tactical courses of instruction much more practical. High capacity CD ROM disks and interactive television can provide the means to reach and educate a much greater student base than is now possible. Courses such as the Armed Forces Staff College course on joint planning and orientation are ideal for such a distribution system.¹⁷ As courses at service tactical schoolhouses begin to incorporate joint topics and new joint courses are developed, selected lectures or entire courses can be put on CD and used as part of individual unit cyclic training. As joint tactics and procedures are formalized and accepted, the importance of ensuring widespread access to joint education is an essential element in fostering joint operational capabilities.

A coordinated system of joint tactical training based upon service tactical schoolhouses staffed with joint experts will increase the quality of training and permit informed development or refinement of joint tactics and procedures. As key centers for both the introduction into, and extraction from, lessons learned systems, tactical schoolhouses can accentuate their usefulness. Interservice

short courses hosted by tactical schoolhouses can upgrade the joint operational capabilities of component staffs. Finally, using available technology, access to joint courses and lectures will become widespread and commonplace.

CHAPTER VII NOTES

- 1 Questionnaire reply from Marine Aviation Weapons and Tactics Squadron 1, Marine Corps Air Station Yuma, AZ. October 1991.
- 2 Questionnaire reply from Colonel Bobby D. Buffkin, Commander, 57th Fighter Weapons Wing (TAC), Nellis Air Force Base, NV. September 1991.
- 3 Pearson interview.
- 4 Questionnaire reply from Lieutenant Commander Brad Johanson, Naval Strike Warfare Center, Naval Air Station Fallon, NV. October 1991.
- 5 Questionnaire reply from Commander Joe Christofferson, Executive Officer, Navy Fighter Weapons School, San Diego, CA. September 1991.
- 6 Questionnaire reply from Captain Lusk, U.S. Army Aviation Center ATZQ-TDI-OU, Fort Rucker, AL. October 1991.
- 7 Questionnaire reply from Lieutenant Colonel Tom Spada, Directorate of Fighter Training and Tactics DOTO, Headquarters, Tactical Air Command, Langley Air Force Base, VA. October 1991.
- 8 Telephone conversation with Mr. Bill Brown, Chief of Naval Education and Training, Interservice Training Review Organization (ITRO) Total Force Coordinator, Pensacola, FL. 20 September 1991.
- 9 Interview with Mr. Paul Duffy, Marine Corps Combat Development Center, Joint Training Control, Quantico, VA: 1 October 1991.
- 10 Brown telephone conversation.
- 11 Pearson interview.
- 12 Fleming interview.
- 13 Johanson questionnaire reply.
- 14 Questionnaire reply from Lieutenant Commander Craig, Naval Strike Warfare Center, Naval Air Station Fallon, NV. October 1991.

15 Questionnaire reply from Captain Ron Pearson, Tactical Training Group Atlantic (Code 32), Dam Neck, VA. October 1991.

16 Questionnaire reply form Colonel E.P. Smith, Operations Deputy for Readiness, Commander-in-Chief, U.S. Pacific Command, Camp H.M. Smith, HI. October 1991.

17 Lennon interview.

CHAPTER VIII

CONCLUSIONS AND RECOMMENDATIONS

New Awareness. The interoperability problems encountered in Operations Desert Storm and Desert Shield have indeed produced a new awareness among the services of the necessity to improve joint operational capabilities. At the same time it is also generally understood that joint training is still in a developmental stage.¹ However, despite the increased emphasis on joint interoperability, unless a coordinated and coherent strategy is implemented for achieving these goals then joint operational integration will continue to be uneven and haphazard.

Finding the "Right" Level of Joint Integration. An irksome question which often enters into the debate is what is the right level of "jointness"?² That question will become more of a "moving target" as force structure reductions and budget cuts further reduce redundant service tactical capabilities. What is appropriately a single service mission today may very well acquire joint status in the future out of sheer necessity.

The most logical way to approach this difficulty is close coordination between the unified commands and the Joint Staff. The radically changing strategic environment will impose a set of different required operational capabilities upon the unified commands. The need for mobile, rapidly deployable forces is sure to increase

relative to past requirements. Yet the necessity to maintain some measure of heavy forces will remain. What is certain, however, is that rarely, if ever, will forces be employed as discrete, single service sets.

The challenge, then, is to devise training methods which will permit, and indeed, encourage such flexible employment patterns. New roles and missions will inevitably evolve over time. A conventional role for the B-52 bomber which includes maritime responsibilities is but one example of just such an evolution. A joint training "system" should be able to adapt quickly and easily to such shifting roles.

An Integrated Approach to Promoting Joint Interoperability. This paper has purposely viewed joint integration from a number of different perspectives. While improvements in each studied area -- joint officer personnel policy, joint exercise programs, lessons learned systems and schoolhouse and unit training, would add to joint operational capabilities, it is together that they possess significant potential to improve military capabilities. The synergistic effect, to use a well worn phrase, of complimentary modifications in each area is much greater than piecemeal improvements here and there.

In order to address all four main subject areas, specific, detailed analysis was often foregone in favor of a broad overview of the topic. Since the focus of interservice cooperation was generally limited to Navy-Air

Force interaction, some of the issues raised do not apply universally across all service lines. Nevertheless, the broad implications regarding joint integration remain valid. For if effective and commonplace joint interaction is possible in a certain warfare area there is little reason that same experience cannot be repeated universally.

Peacetime training and employment patterns may have to change dramatically but if increased joint force operational capability results then any perturbations will have been worth the cost. Dramatic changes in military force structure are coming regardless; timidly approaching the problems of joint integration will assure a disproportionate reduction in overall military capability. For if the numbers decrease, the effectiveness of our military forces must increase to stay abreast of both different and often more challenging military requirements.

Developing Joint Attitudes. The Skelton Panel Report recommended that the second phase of Joint Professional Military Education (JPME) should emphasize, among other topics, "understanding of the four separate service cultures" and the development of "joint attitudes and perspectives", which taken together, they termed as "socialization" or "bonding".³ The inherent weakness of applying this approach to only joint staff officers was pointed out by an instructor at the Army's Field Artillery School,

[The] Services must teach officers how to work in a joint operational environment. Dependence on the joint military education process to accomplish this results in only a few joint staff officers who can't convince components on [sic] the absolute necessity for joint cooperation. Oftentimes it is the working relationships between component staffs which are not joint staffs, which requires mutual understanding of joint operations.⁴

Both expanded interservice exchange tours with corresponding joint duty credit and in-service joint duty, in key operational and instructional billets, are needed to "jump start" the process of fostering joint perspectives within all the services. These measures will also foster increased mutual understanding of service perspectives or "worldviews" which is a prerequisite to producing useful joint doctrine.⁵

Joint attitudes, if widely held, can help rationalize the process of downsizing by easing service reticence towards assigning traditional service functions to a sister service. The permanent transfer of Navy electronic support measures, airborne early warning and inflight refueling support missions to the Air Force is one proposal along these lines.⁶ Another calls for the Marine Corps to forfeit its heavy armor, deep strike and fighter capabilities in favor of relying on Navy and Air Force support in these areas.⁷ Duplicate capabilities will force such reductions on the services in a tight fiscal environment. Joint attitudes can ensure that such reductions occur as a result of interservice agreement and not congressional fiat.

The emphasis placed on joint attitudes and integration by the military leadership must parallel the high level of commitment given to Total Quality Leadership (TQL) by the Chief of Naval Operations. The prerequisites for successful implementation of joint integration are remarkably similar to those recommended by Rear Admiral Holland in his U.S. Naval Institute Proceedings discussion of TQL,

... those things that can be changed must be changed openly and visibly. The more dramatic the change, the more likely it will be taken as convincing evidence of a clear-cut institutional commitment...⁸

In fact, the dictums of Total Quality Management (TQM), from which the TQL program is drawn, stress attention to chronic problems rather than those of a recent nature.⁹ The lack of interservice cooperation is certainly a chronic problem deserving of a TQL approach.

Composite Wings. An opportune test case for developing new modes of interservice coordination and cooperation is the introduction of the composite wing concept to the Air Force. Centered on the concept of "Global Reach, Global Power", composite wings will feature a mixture of aircraft designed to respond quickly to contingency situations.¹⁰ The description is remarkably similar to that of a Navy carrier air wing. The composite wing is not envisioned as a stand-alone force but one that will almost certainly be employed jointly.¹¹

Decades of Navy operational experience with carrier air wings need to be passed on to the Air Force as it implements

its tactical reorganization plans. The Navy-Air Force Board is an ideal forum to promote such an information exchange. Logistics, maintenance, training and employment can all be accomplished more smoothly with Navy cooperation.

Logistics and maintenance requirements, especially for aircraft with low numbers and high support requirements, such as the E-3A AWACS or the EF-111 electronic warfare aircraft, do not commend themselves several remote sites. An alternative would provide for a number of "provisional" composite wings with training and maintenance needs continuing to be satisfied at their present, separate sites; operational training and employment would be as a integrated unit.¹² Again, this sounds remarkably similar to the Navy's carrier air wing system -- squadrons are drawn individually or in pairs from "functional" (i.e. - training and maintenance) wings.

While Navy carrier air wing experience may not be universally applicable to the composite wing concept, in toto it represents a enormous "lesson learned" which should be proffered and hopefully, accepted and utilized by the Air Force. Air Force composite wings and Navy carrier air wings will almost certainly be called upon to jointly react to contingency situations; early cooperation and coordinated development of concepts and procedures for employment makes sense.

Summary of Recommendations. Recommendations covering the general areas of interservice involvement discussed in this paper are as follows:

1) The Joint Staff and the Office of the Secretary of Defense should petition Congress for limited legislative relief from the 1986 Defense Reorganization Act restriction against an officer serving in a joint duty assignment within his own military department. The total percentage of such billets should be in the range of ten percent.

a) Service manpower bureaus (Bureau of Naval Personnel, etc) should develop a listing of key in-service operational and schoolhouse billets which would qualify for an own-service joint duty assignment waiver. Included should be recommendations for which of these billets warrant designation as critical joint billets, to be filled only by a Joint Specialist Officer.

2) The Joint Staff, in conjunction with the Office of the Secretary of Defense, should modify the Joint Duty Assignment List to include interservice operational exchange tours. Corresponding reductions in non-operational or general administrative billets from the Joint Duty Assignment List should also be made.

a) The Military Education Division of the Operational Plans and Interoperability Directorate (J-7) of the Joint Staff should establish abbreviated Joint Military Professional Education (JPME) requirements of approximately two to three months to support such a program.

b) Service manpower bureaus should develop a listing of candidate billets to support an expanded exchange tour program. A Navy-Air Force exchange program should include three to four officers from key aircraft communities in each operational airwing.

c) Service manpower bureaus should establish a subspecialty code in joint tactics to facilitate the follow-on assignment of such officers to tactical schoolhouses.

3) The Chairman, Joint Chiefs of Staff should impanel a joint task force or working group composed of flag officers and supporting staff representing the unified commands and service operational and training commands to complete the following tasks:

- Write a master Joint Mission Essential Task List, including detailed supporting and enabling tasks, as a blueprint for coordinated joint training requirements.

- Make a recommendation concerning the need for, and makeup of, an interservice organization similar in concept to the Interservice Training Review Organization (ITRO) to coordinate joint tactical training between service tactical schoolhouses.

- Make a recommendation regarding the necessity for a joint command similar to the Joint Doctrine Center to direct the development and ongoing refinement of Joint Tactics, Techniques and Procedures. Such a Center would have the authority to direct service tactical schoolhouses

and other commands to develop, test and refine joint tactics and procedures in their areas of expertise.

- Direct a working group composed of operational commanders and supporting personnel involved in Desert Shield and Desert Storm operations to make recommendations regarding interim formalization as Joint Tactics, Techniques and Procedures (JTTP) of those ad hoc tactics and procedures which were utilized during Gulf operations.

4) The Evaluation and Analysis Division of the Operational Plans and Interoperability Directorate (J-7) of the Joint Staff, in conjunction with the services, should establish a minimum distribution list for the Joint Universal Lessons Learned refined data base. Such a list should generally include tactical commands with commanding officers at the O-5 or O-6 level; in the instance of the Navy, carrier air wings and destroyer squadrons would be the ideal minimum level of command.

a) The Operational Plans and Interoperability Directorate (J-7) of the Joint Staff should sponsor and coordinate an interservice Memorandum of Agreement (MOA) which lays out procedures for routine interservice access to service lessons learned data bases as well as hardware and software commonality requirements to make such access practical.

5) The Chief of Naval Operations should establish a Naval Warfare Center under the command of a Vice Admiral which would roughly parallel in concept and practice the

Army's Training and Doctrine Command and the Marine Corps' Marine Air Ground Task Force Warfighting Center. The center would be tasked to:

- Act as the central Navy agency for naval warfare doctrine.

- Ensure the maximum practical interfleet tactical and procedural commonality.

- Act as the Navy's point of contact for all joint doctrine and integration matters. Conduct ongoing study and analysis of the naval role in joint operations.

- Manage and administer the Navy Lessons Learned System and act as a central validation site for all Navy lessons learned. Act as the interface between the Navy Lessons Learned System and other service and joint lessons learned systems.

- Manage and administer a Navy Remedial Action Projects Program, integrated with the Navy Lessons Learned System and act as the Navy representative to the joint Remedial Action Projects Program Steering Committee.

- a) To facilitate its role in joint integration a number of Naval Warfare Center billets should be designated as joint duty billets, a small portion of these being critical joint billets.

- b) To ensure informed analysis and evaluation of submitted lessons learned, analysts from the Center for Naval Analyses should be assigned to the division or section which manages the Navy Lessons Learned System. A number of

Joint Duty Assignment List billets should also be allocated to this division. The Remedial Action Projects Program division should have similar personnel requirements.

6) The Navy-Air Force Board should sponsor a study on the joint employment of Navy carrier battle groups operating in conjunction with Air Force composite wings. Tactics development and evaluation should be conducted during exercises at Nellis Air Force Base, Nevada (Red Flag) or Naval Air Station Fallon, Nevada.

a) The Chief of Naval Operations staff and the fleet naval air force staffs (Naval Air Forces, Pacific and Atlantic) should liaise with Air Force counterparts to provide assistance and lessons learned to ease implementation of the composite wing concept.

That these recommendations could be refined and improved upon is, of course, a given; especially considering the broad overview taken by this paper. However, they do provide a general basis for improving joint operational capabilities.

CHAPTER VIII NOTES

- 1 MacKercher interview.
- 2 O'Dell and Rogers interview.
- 3 Panel on Military Education, p. 4.
- 4 Questionnaire reply from Major Mike Olson, U.S. Army Field Artillery School ATSF-DM, Fort Sill, OK. October 1991.
- 5 Dennis M. Drew, "Joint Operations: The World Looks Different From 10,000 Feet," Airpower Journal, Fall 1988, p. 15.
- 6 William P. Lawrence, "Comment and Discussion," U.S. Naval Institute Proceedings, August 1990, p. 77.
- 7 Carlton W. Meyer, "No More Package Deal," U.S. Naval Institute Proceedings, November 1991, pp. 36-40.
- 8 W. J. Holland, Jr., "TQL: Panacea or Pabulum," U.S. Naval Institute Proceedings, July 1991, p. 13.
- 9 Holland, p. 13.
- 10 James W. Canan, "One Base, One Wing, One Boss," Air Force Magazine, August 1991, pp. 17-19.
- 11 Timothy H. Courington, "Ricochets: Composite Wings," Airpower Journal, Summer 1991, p. 3.
- 12 Gary L. Dikkers, "Ricochets: Composite Wings," Airpower Journal, Summer 1991, pp. 71-72.

APPENDIX I

GLOSSARY

GLOSSARY

- ARG Amphibious Ready Group. Generally consists of a four ship task group under the command of an amphibious squadron commander, with an embarked contingent of approximately 1200 Marines.
- ATA Advanced tactical assessment. Tactical unit inspection which evaluates a unit's ability to perform its tactical mission(s), usually against an opposition force and generally over a period of a few days to a week. Normally used at the task group level for Navy units.
- ATO Air Tasking Order. Daily multiservice listing of overland flight operations in a theater of operations. Includes register of aircraft type, number, weapons loadout, target assignment, etc.
- AWACS Airborne Warning And Control System. USAF E-3A Sentry aircraft equipped with an onboard long range radar and associated computer and communications equipment. Used to manage and direct air operations.
- BDA Bomb Damage Assessment. Intelligence assessment based upon post-strike photography, aircrew debriefs, etc of the effectiveness of strike missions. May identify the need for restriking a particular target.
- CAFMS Computer Assisted Flight Management System. An Air Force system used for the development, coordination and transmission of the Air Tasking Order.
- CAP Combat Air Patrol. Fighter aircraft patrols. Sometimes provided in support of other airborne units - strike groups, High Value Units (AWACS, EA-6B's, etc). Normally controlled by an AWACS type aircraft (E-3A, E-2C).
- CAS Close Air Support. Airborne attacks on frontline enemy formations made in direct support and under control of, friendly ground forces.
- CJCS Chairman, Joint Chiefs of Staff.
- Combined Applies to military operations or exercises which involve the armed forces of more than one country.
- COS Critical Occupational Specialist. An officer with critical combat operations skills; in the Navy

limited to those officers in the major warfare communities - surface warfare, submarines, aviation, special warfare, etc. Joint duty assignment tour length requirements may be reduced to two years (from normal minimum of three years) in the case of these officers.

CVBG Carrier battle group. Centered around an aircraft carrier with an embarked air wing of approximately 90 aircraft. Escort ships normally include guided missile cruisers, destroyers and frigates as well as supporting fuel, supply and ammunition ships.

EI Exercise Item. Remedial Action Projects Program category that pertains to exercise design or management.

HVU High Value Unit. Airborne asset (e.g. - EA-6B Prowler jamming aircraft, E-3A Sentry AWACS aircraft) which lacks self-protection capability and requires dedicated fighter support when operating in a threat environment.

ITRO Interservice Training Review Organization. Voluntary interservice organization which attempts to consolidate individual technical training requirements of the services.

JCLL Joint Center for Lessons Learned. Managed by Evaluation and Analysis Division of Joint Staff. Includes people, hardware and software systems.

JDAL Joint Duty Assignment List. Annually updated list which contains listing and distribution of those O-4 to O-6 billets eligible for Joint Duty Credit.

JFACC Joint Force Air Component Commander. Operational commander designated by the Joint Force Commander (JFC) to direct and coordinate all air operations within the joint force.

JMETL Joint Mission Essential Task List. Listing of required joint operational capabilities needed to perform the mission of a unified commander. Included as part of the particular unified commander's Joint Training Plan (JTP).

Joint Applies to military operations, exercises or structures which include forces from more than one United States armed service.

JPME Joint Professional Military Education. Two-phased training track designed to prepare intermediate and senior level officers for joint duty

assignments, generally in staff positions. The first phase, nine to ten months in duration, is normally given at the service war colleges. Phase II is an intensive twelve week course focusing solely on joint matters given by the Armed Forces Staff College.

JSCP Joint Strategic Capabilities Plan. Assigns strategic tasks to unified commands. Reflected in operational plans.

JSO Joint Specialty Officer. Officer who has completed Joint Professional Military Education (JPME) requirements and served in a designated joint duty assignment.

JSTE Joint Systems Training Exercise. Forces Command-sponsored exercise which connects service tactical data links to exercise multiservice air control and coordination.

JTAO Joint Tactical Air Operations. Multiservice tactical air operations requiring joint command, control and communications procedures.

JTP Joint Training Plan. Document which specifies how a unified command's joint training requirements, listed as Joint Mission Essential Tasks (JMET's), will be accomplished during a fiscal year. The plan lists which exercises will be used to train to the tasks included in the command's Joint Mission Essential Task List (JMETL).

JTTP Joint Techniques, Tactics and Procedures. Techniques, tactics and procedures which are used in joint operations and which support joint doctrine.

JULLS Joint Universal Lessons Learned System. Software program which generates and manages the joint lessons learned data base. Sometimes used synonymously with the entire Joint Center for Lessons Learned system.

MCLLS Marine Corps Lessons Learned System. Computer-based system which collects and disseminates lessons learned from USMC operations, exercises, etc.

NI Noted Item. Remedial Action Projects Program category that requires no corrective action. Also used to document tactics, techniques and procedures that worked well.

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NLLS Navy Lessons Learned System. Computer-based system which collects and disseminates lessons learned from Navy operations, exercises, etc.

ORI Operational Readiness Inspection. Tactical unit inspection which evaluates a unit's ability to perform its assigned tactical mission(s), usually against an opposition force and generally over a period of a few days to a week.

PI Procedural Item. Remedial Action Projects Program category that identifies need for training or command emphasis. In-place procedures were not followed.

PME Professional Military Education. Officer professional education which begins after commissioning and can continue to general/flag level. Includes warfare specialty courses (primary level), command and staff colleges (intermediate), senior war college (senior) and Capstone (flag level).

RAP Remedial Action Project. Identified problem that can be corrected through specific action. RAP programs exist at both service and joint levels.

SAI Single Agency Item. Remedial Action Projects Program category that pertains to only a single service or agency.

SEAL Sea, Air and Land. Navy's designation for its special operations forces. So named for the requirement to operate in all three environments.

WIN WWMCCS Intercomputer Network. Computer network which links WWMCCS users.

WWMCCS Worldwide Military Command and Control System. Computer-based command and control system linking all major U.S. military commands.

APPENDIX II

SAMPLE QUESTIONNAIRE

JOINT TRAINING QUESTIONNAIRE

PLEASE ANSWER ALL QUESTIONS WHICH APPLY TO YOUR PARTICULAR COMMAND/SERVICE. MY FOCUS IS ON JOINT INTERACTION AT ANY LEVEL BELOW A JOINT STAFF. IF YOU ARE AWARE OF AN INDIVIDUAL OR COMMAND WHICH IS PARTICULARLY EXPERT IN A CERTAIN AREA PLEASE LIST (COMMAND NAME IF NOTHING ELSE AVAILABLE). ALL ANSWERS SHOULD REMAIN UNCLASSIFIED. IF FEASIBLE, I WOULD VERY MUCH LIKE A COPY OF YOUR COMMAND'S INSTRUCTION WHICH ADDRESSES JOINT TRAINING (OR THOSE APPLICABLE UNCLASSIFIED PORTIONS OF AN OVERALL TRAINING INSTRUCTION). MY PHONE NUMBER IS 401-841-3359/3304 (COMMERCIAL) OR 948-3359/3304 (A/V).

COMMAND POINT OF CONTACT -

PHONE NUMBER (A/V AND COMMERCIAL) -

1. DOES YOUR SERVICE/COMMAND HAVE TRAINING PROGRAMS WHICH EMPHASIZE JOINT TACTICS AND COORDINATION IN ADDITION TO THOSE WHICH ADDRESS CAPABILITIES AND HARDWARE? IF SO, PLEASE DESCRIBE.

2. DOES YOUR JOINT TRAINING PROGRAM INCLUDE LESSONS LEARNED FROM RECENT OPERATIONS AND EXERCISES (E.G. - DESERT SHIELD/STORM, PACEX 89)?

3. ARE OTHER SERVICE INSTRUCTORS PART OF YOUR STAFF? IF NOT, ARE BRIEFING TEAMS FROM OTHER SERVICE COMMANDS INCLUDED IN THE SYLLABUS?

4. ARE JOINT TACTICS AND OPERATIONAL ISSUES ADDRESSED IN YOUR COMMAND'S/SERVICE'S TACTICAL TRAINING PERIODICALS (AIMPOINT, ETC)?

5. DOES YOUR COMMAND PUBLICIZE VALIDATED JULLS IN TACTICS MAGAZINES/NEWSLETTERS (AIMPOINT, ETC)?

6. DOES YOUR COMMAND HAVE A PROGRAM TO RAPIDLY INCORPORATE APPLICABLE LESSONS LEARNED FROM JULLS (AS WELL AS OTHER SERVICE TACTICAL LESSONS LEARNED DATA BASES) INTO YOUR TRAINING PROGRAM/SYLLABUS?

7. DOES YOUR JOINT TRAINING PROGRAM COVER COMMON TERMINOLOGY DIFFERENCES THAT COULD HAMPER INTEROPERABILITY DURING JOINT OPERATIONS?

8. AT WHAT LEVELS SHOULD/DOES JOINT TRAINING TAKE PLACE WITHIN YOUR SERVICE (I.E. - FLEET REPLACEMENT SQUADRON, NAVAL STRIKE WARFARE CENTER, USN/USAF FIGHTER WEAPONS SCHOOL, TACTICAL TRAINING GROUP)?

9. PLEASE COMMENT ON THE FEASIBILITY AND DESIRABILITY OF THE FOLLOWING AS PROSPECTIVE METHODS FOR IMPROVING JOINT OPERATIONAL TRAINING. IF YOU DON'T THINK IT WILL WORK STATE WHY, SERVICE "RICE BOWL" CONSIDERATIONS ASIDE. ADDITIONAL RECOMMENDATIONS ARE ESPECIALLY WELCOME.

A. CONTINUUM APPROACH (INCREASING LEVEL OF KNOWLEDGE REQUIREMENTS THROUGHOUT CAREER); APPLIED TO ALL LEVELS OF TACTICAL TRAINING.

B. INCREASING EXCHANGE OFFICER PROGRAMS (IDEALLY O-3 TO O-5'S IN OPERATIONAL BILLETS WITH CORRESPONDING JOINT DUTY CREDIT).

C. JOINT OPERATIONS INCLUDED AS REGULAR PART OF ALL TACTICAL TRAINING COURSES (BOTH CLASSROOM AND FIELD TRAINING).

D. INCREASING UNIT LEVEL JOINT OPERATIONAL TRAINING REQUIREMENTS (WITH CORRESPONDING REFLECTION IN UNIT LEVEL AWARDS COMPETITIONS - BATTLE E, ETC).

E. TESTING JOINT OPERATIONAL KNOWLEDGE AND EXPERTISE AS PART OF REGULAR OPERATIONAL INSPECTIONS (ORI, ATA, ETC).

F. USE OF JOINT EXERCISES TO PROGRAMMATICALLY VALIDATE LESSONS LEARNED FROM PREVIOUS EXERCISES/OPERATIONS.

10. ADDITIONAL COMMENTS -

THANK YOU VERY MUCH FOR YOUR COOPERATION!!

BIBLIOGRAPHY

- Admire, John H. "Joint Operations: Marine Corps Capabilities and Contributions." Marine Corps Gazette, August 1990, pp. 82-89.
- Armstrong, Charles L. "Early Observations on Desert Shield." Marine Corps Gazette, January 1991, pp. 34-36.
- Arthur, Stanley R. and Pokrant, Marvin. "Desert Storm at Sea." U.S. Naval Institute Proceedings, May 1991, pp. 82-87.
- Baker, Caleb. "Old Fighting Doctrine Faces Post-War Overhaul." Defense News, 15 April 1991, pp. 10:1-4, 44:1-5
- Baker, Caleb. "U.S. Army's Power Projection Doctrine Downplays Rivalry, Seeks AF Support." Defense News, 2 September 1991, p. 25: 1-3.
- Baker, Caleb and Holzer, Robert. "Joint Chiefs Study Plan to Combine Service Training." Defense News, 27 May 1991, pp. 3:1-4, 36:1.
- Bien, Lyle G. "From the Strike Cell." U.S. Naval Institute Proceedings, June 1991, pp. 58-60.
- Bird, Julie. "Confusion, limited AF-Marine Training contributed to mistakes, analysts say." Navy Times, 26 August 1991, p. 13:1-2.
- Bird, Julie. "McPeak lays out rationale for composite wings." Defense News, 29 April 1991, p. 4:1-3.
- Braunbeck, Michael C. "Comment and Discussion." U.S. Naval Institute Proceedings, January 1991, pp. 14-20.
- Byron, John L. "Learning The Lessons." U.S. Naval Institute Proceedings, May 1991, p. 101.
- Canan, James W. "One Base, One Wing, One Boss." Air Force Magazine, August 1991, pp. 17-19.
- Center for Naval Analyses. Analysis of the Size of the Joint Duty Assignment List. CRM 89-293. Alexandria, VA: 1990.
- Coroalles, Anthony M. "MR Letters: Air Power Not Decisive at Operational Level." Military Review, August 1991, p. 97.
- Courington, Timothy H. "Ricochets: Composite Wings." Airpower Journal, Summer 1991, p. 3.

- Cushman, John H. "Command and Control In the Coalition." U.S. Naval Institute Proceedings, May 1991, pp. 74-80.
- Cushman, John H. "A Look at the Air Tasking Order." U.S. Naval Institute Proceedings, October 1991, pp. 114-115.
- Depuy, William E. "For the Joint Specialist: Five Steep Hill to Climb." Parameters, September 1989, pp. 2-12.
- Dijkers, Gary L. "Ricochets: Composite Wings." Airpower Journal, Summer 1991, pp. 71-72.
- Dermer, Phillip J. "JAAT Eagle 87." U.S. Army Aviation Digest, August 1988, pp. 32-35.
- Drew, Dennis M. "Joint Operations: The World Looks Different From 10,000 Feet." Airpower Journal, Fall 1988, pp. 4-16.
- Dunn, R.F. "After the Storm." U.S. Naval Institute Proceedings, June 1991, pp. 60-61.
- Endacott, Steve. "Desert Storm Report." Wings of Gold, Spring 1991, pp. 28-30.
- Ennis, Ned B. "Exercise Golden Pheasant: A Show of Force." Military Review, March 1989, pp. 20-26.
- Flores, Susan J. "Let's Play Ball." Marine Corps Gazette, October 1990, pp. 60-61.
- Friedman, Norman. Desert Victory: The War for Kuwait. Annapolis, MD: Naval Institute Press, 1991.
- Garrett, H. Lawrence III et al. "The Way Ahead." U.S. Naval Institute Proceedings, April 1991, pp. 36-47.
- Gatchel, Theodore L. "Hang Together, or Hang Separately." U.S. Naval Institute Proceedings, November 1990, pp. 56-62.
- Green, Bill et al. "Two Steps Ahead." U.S. Naval Institute Proceedings, May 1991, pp. 97-99.
- Golden, Walter M. and Lusk, Chris. "Arctic JAAT." U.S. Army Aviation Digest, March/April 1990, pp. 11-13.
- Grandin, Jay F. "After Grenada: Joint Operations in the 82nd Airborne Division." Field Artillery, February 1988, pp. 43-46.
- Gregson, W.C. "Blue-Green Is a Primary Color." U.S. Naval Institute Proceedings, April 1991, pp. 54-59.

- Grossman, Larry. "Beyond Rivalry." Government Executive, June 1991, pp. 11-15.
- Grossman, Larry. "A Joint Venture." Government Executive, July 1991, pp. 14-18.
- Hinrichs, Ralph Jr. "Joint Duty: Pathway to the Stars or Purple Haze?." Special Warfare, Spring 1989, pp. 38-41.
- Hoffman, F.G. "Why Reinvent the Wheel?" Marine Corps Gazette, August 1991, pp. 29-34.
- Hogan, E.J. Jr. "TacAir = Naval Air + Marine Air." U.S. Naval Institute Proceedings, November 1991, p. 13.
- Holland, W. J. Jr. "TQL: Panacea or Pabulum." U.S. Naval Institute Proceedings, July 1991, p. 13.
- Holzer, Robert. "Long Buildup Allowed U.S. to Fill Gaps in Intelligence." Defense News, 18 March 1991, p. 5:1.
- "Honing Air-Ground Power." Army, February 1991, p. 33.
- Hopgood, M.T. Jr. "Experience: Handle With Care." U.S. Naval Institute Proceedings, October 1991, pp. 81-82.
- Huggins, Vernon M. "Joint Combat Airspace Command and Control Course." U.S. Army Aviation Digest, May 1988, pp. 16-17.
- Interview with Major David H. Curry, Marine Air Ground Task Force Warfighting Center, Studies and Analysis Branch, Lessons Learned Section, Quantico, VA: 1 October 1991.
- Interview with Mr. Paul Duffy, Marine Corps Combat Development Center, Joint Training Control, Quantico, VA: 1 October 1991.
- Interview with Lieutenant Commander Russell Early, Strike Weapons and Tactics School Atlantic Executive Officer, Oceana, VA: 3 October 1991.
- Interview with Lieutenant Colonel Fleming, Joint Chiefs of Staff, J-7 (Operational Plans and Interoperability Directorate), Joint Exercise and Training Division, Washington, DC: 30 September 1991.
- Interview with Dr. Christine Fox and Dr. Allen Brown, Center for Naval Analyses, Alexandria, VA: 30 September 1991.
- Interview with Commander John Howell, Joint Chiefs of Staff, J-7 (Operational Plans and Interoperability Directorate), Evaluation and Analysis Division, Washington, D.C.: 30 September 1991.

Interview with Commander Gary Lennon, Commander Naval Surface Force, Atlantic Fleet (Doctrine and Tactics), Norfolk, VA: 2 October 1991.

Interview with Lieutenant Commander Jay MacKercher, U.S. Atlantic Command, J-34 (Joint Training Plan), Norfolk, VA: 2 October 1991.

Interview with Lieutenant Colonel McAteer, U.S. Atlantic Command J-34 (Exercise Planning), Norfolk, VA: 2 October 1991.

Interview with Mr. Robert O'Dell and Lieutenant Commander Rogers, Commander-in-Chief U.S. Atlantic Fleet Staff, Norfolk, VA: 4 October 1991.

Interview with Commander David O'Neil (Code 27) and Chief Warrant Officer Brody, Fleet Combat Training Center Atlantic, Dam Neck, VA: 3 October 1991.

Interview with Captain Robert Pacek, Joint Chiefs of Staff, J-7 (Operational Plans and Interoperability Directorate), Joint Exercise and Training Division, Washington, DC: 30 September 1991.

Interview with Captain Ron Pearson, Tactical Training Group Atlantic (Code 32), Dam Neck, VA: 3 October 1991.

Johnson, Creid K. "Red Flag: Lessons Relearned." USAF Fighter Weapons Review, Winter 1990, pp. 16-17.

Joint Operations and Doctrine News. Washington: Office of the Chief of Naval Operations, Joint Operations and Doctrine Branch (OP-607), Summer 1991.

Joint Staff. Worldwide Joint Training Conference Hotwash (Memorandum) Washington: 24 September 1991.

Jore, Jeffrey D. "Military Review Letters: Combined Services, Not USAF, Are Kings." Military Review, August 1991, pp. 96-97.

Kelly, Brian T. "Ricochets: Composite Wings." Airpower Journal, Summer 1991, pp. 3, 71.

Lawrence, William P. "Comment and Discussion." U.S. Naval Institute Proceedings, August 1990, p. 77.

Leaf, Daniel P. "The Future of Close Air Support." Military Review, March 1989, pp. 11-19.

Loren, Donald P. "Comment and Discussion." U.S. Naval Institute Proceedings, August 1991, pp. 16-19.

- Lukeman, Anthony. "Joint Officer Management: Where We Stand." Defense 88, July/August 1988, pp. 24-27.
- Mann, Dennis W. "TACS/AAGS. What is it? What Do Marines Need to Know About It." Marine Corps Gazette, October 1988, pp. 56-59.
- "Marine Bags Mig." The Shield and the Storm: Naval and Marine Corps Aviation in the Gulf War, 1991, p. 32.
- Maze, Rick. "Pentagon at odds with Senate over joint-duty credit from war." Navy Times, 30 September 1991, p. 20:1-5.
- Meyer, Carlton W. "No More Package Deal." U.S. Naval Institute Proceedings, November 1991, pp. 36-40.
- Miller, John E. "Training and Educating Leaders for the Future: The New CGSOC Curriculum." Military Review, January 1991, pp. 10-17.
- Mixson, Riley D. "Where We Must Do Better." U.S. Naval Institute Proceedings, August 1991, pp. 38-39.
- Muir, Daniel J. "A View from the Black Hole." U.S. Naval Institute Proceedings, October 1991, p. 85-86.
- Munro, Neil. "Centralized Command Over Air Allows Coordinated Air Strikes." Defense News, 21 January 1991, p. 28:1-5.
- Munro, Neil. "Remedies for U.S. Friendly Fire Incidents to Prove Vexing." Defense News, 19 August 1991. pp. 3:1-5, 21:4-5.
- Office of the Chairman, Joint Chiefs of Staff. Chairman, Joint Chiefs of Staff, Remedial Action Projects Program (Memorandum) MCM 234-90. Washington: 1990.
- Office of the Chairman, Joint Chiefs of Staff. Joint Center for Lessons Learned (Memorandum) MCM 86-90. Washington: 1990.
- Office of the Chairman, Joint Chiefs of Staff. Joint Training Manual. MCM 59-91. Washington: 1991.
- Office of the Chairman, Joint Chiefs of Staff. Joint Training Program. CJCS MOP 26. Washington: 1990.
- Office of Chief of Naval Operations. Memorandum of Agreement on Joint USN/USAF Efforts for Enhanced Interoperability and Cooperation. Washington: 1991.
- Opall, Barbara. "Air Force To Restructure Tactical Forces."

- Defense News, 14 January 1991, pp. 3:1-4, 20:3-5.
- Opall, Barbara. "Official Urges Navy, AF to Further Blend Air Efforts." Defense News, 1 April 1991, pp. 3:1-3, 28:1-3.
- Palastra, Joseph T. Jr. "The Forscom Role in the Joint Arena." Military Review, March 1989, pp. 3-9.
- Palzkill, Dennis. "Making Interoperability Work." U.S. Naval Institute Proceedings, September 1991, pp. 50-54.
- Peters, Steve and Erdley, Mike. "Green Flag '88." Air Defense Artillery, July/August 1988, pp. 33-35.
- Petersen, John L. "Plan for the 21st Century Now." U.S. Naval Institute Proceedings, August 1991, pp. 49-54.
- Questionnaire reply from Commander Timothy Ahern, Naval War College Student, Newport, RI. September 1991.
- Questionnaire reply from Lieutenant Colonel Clint Ancker, Naval War College Student, Newport, RI. September 1991.
- Questionnaire reply from Major Michael J. Barker, Naval War College Student, Newport, RI. September 1991.
- Questionnaire reply from Commander James Barnett, Naval War College Student, Newport, RI. September 1991.
- Questionnaire reply from Lieutenant Colonel Mark Bennett, Naval War College Student, Newport, RI. September 1991.
- Questionnaire reply from Colonel Bobby D. Buffkin, Commander, 57th Fighter Weapons Wing (TAC), Nellis Air Force Base, NV. September 1991.
- Questionnaire reply from Lieutenant Commander Kendall Card, Naval War College Student, Newport, RI. September 1991.
- Questionnaire reply from Captain Dan Chopp, Naval War College Student, Newport, RI. September 1991.
- Questionnaire reply from Commander Joe Christofferson, Executive Officer, Navy Fighter Weapons School, San Diego, CA. September 1991.
- Questionnaire reply from Lieutenant Colonel Chip Cobb, Naval War College Student, Newport, RI. September 1991.
- Questionnaire reply from Major H.J. Coble, Naval War College Student, Newport, RI. September 1991.

Questionnaire reply from Lieutenant Commander J.A. Cole,
Tactical Training Group Pacific, San Diego, CA. October
1991.

Questionnaire reply from Commander R.H. Coon, Naval War
College Student, Newport, RI. September 1991.

Questionnaire reply from Lieutenant Colonel Max A. Corley,
Deputy G-3, 7th Marine Expeditionary Brigade, Marine
Corps Air-Ground Combat Center, Twentynine Palms, CA.
October 1991.

Questionnaire reply from Lieutenant Commander Craig, Naval
Strike Warfare Center, Naval Air Station Fallon, NV.
October 1991.

Questionnaire reply from Major David Currid, Naval War College
Student, Newport, RI. September 1991.

Questionnaire reply from Lieutenant Colonel Harry Davis, Naval
War College Student, Newport, RI. September 1991.

Questionnaire reply from Major Brian Dingess, Naval War
College Student, Newport, RI. September 1991.

Questionnaire reply from Commander Daniel L. Donovan, Naval
War College Student, Newport, RI. September 1991.

Questionnaire reply from Lieutenant Colonel John D. Enyart,
U.S. Army Armor School ATSB-TDT, Fort Knox, KY. October
1991.

Questionnaire reply from Commander P.M. Garrett, Naval
War College Student, Newport, RI. September 1991.

Questionnaire reply from Lieutenant Commander James P.
Gigliotti, Naval Strike Warfare Center, Naval Air Station
Fallon, NV. October 1991.

Questionnaire reply from Lieutenant Commander Doug Hancher,
Naval War College Student, Newport, RI. September 1991.

Questionnaire reply from Major Michael Howard, Naval War
College Student, Newport, RI. September 1991.

Questionnaire reply from Major James Howcroft, Naval War
College Student, Newport, RI. September 1991.

Questionnaire reply from Lieutenant Commander Brad Johanson,
Naval Strike Warfare Center, Naval Air Station Fallon,
NV. October 1991.

Questionnaire reply from Colonel Jack W. Klump, Naval War
College Student, Newport, RI. September 1991.

Questionnaire reply from Lieutenant Colonel M.M. Kurth, Naval War College Student, Newport, RI. September 1991.

Questionnaire reply from Commander Gary Lennon, Commander Naval Surface Force Atlantic Fleet (Doctrine and Tactics), Norfolk, VA. October 1991.

Questionnaire reply from Commander Rose M. Levitre, Naval War College Student, Newport, RI. September 1991.

Questionnaire reply from Lieutenant Colonel Scott Long, Naval War College Student, Newport, RI. September 1991.

Questionnaire reply from Captain Lusk, U.S. Army Aviation Center ATZQ-TDI-OU, Fort Rucker, AL. October 1991.

Questionnaire reply from Major Macias, U.S. Army Air Defense Artillery School ATSA-TAC, Fort Bliss, TX. October 1991.

Questionnaire reply from Marine Aviation Weapons and Tactics Squadron 1, Marine Corps Air Station Yuma, AZ. October 1991.

Questionnaire reply from Commander J.D. Maxey, Naval War College Student, Newport, RI. September 1991.

Questionnaire reply from Lieutenant Commander A.R. Moore, Commander Naval Surface Force Pacific Fleet, San Diego, CA. October 1991.

Questionnaire reply from Lieutenant Commander Dave Moore, Naval War College Student, Newport, RI. September 1991.

Questionnaire reply from Commander Dave Nichols, Naval War College Student, Newport, RI. September 1991.

Questionnaire reply from Captain Scott Norwood, Naval War College Student, Newport, RI. September 1991.

Questionnaire reply from Captain John L. Ogle, Commander Naval Air Force Atlantic Fleet (Code 31), Norfolk, VA. September 1991.

Questionnaire reply from Major Keith Oliver, Naval War College Student, Newport, RI. September 1991.

Questionnaire reply from Major Mike Olson, U.S. Army Field Artillery School ATSF-DM, Fort Sill, OK. October 1991.

Questionnaire reply from Lieutenant Commander Dan Ouimette, Sea-Based Weapons and Advanced Tactics School, Pacific, San Diego, CA. September 1991.

Questionnaire reply from Lieutenant Colonel Steven J. Pacheco,
Naval War College Student, Newport, RI. September 1991.

Questionnaire reply from Lieutenant Colonel W.N. Patterson,
Naval War College Student, Newport, RI. September 1991.

Questionnaire reply from Captain Captain Ron Pearson, Tactical
Training Group Atlantic (Code 32), Dam Neck, VA. October
1991.

Questionnaire reply from Commander Phillips, Naval Strike
Warfare Center, Naval Air Station Fallon, NV. October
1991.

Questionnaire reply from Major Dan Price, Headquarters,
Strategic Air Command (Exercises), Offutt Air Force Base,
NE. October 1991.

Questionnaire reply from Major Blair Ross, Naval War College
Student, Newport, RI. September 1991.

Questionnaire reply from Colonel John Sims, Naval War College
Student, Newport, RI. September 1991.

Questionnaire reply from Colonel E.P. Smith, Operations Deputy
for Readiness, Commander-in-Chief, U.S. Pacific Command,
Camp H.M. Smith, HI. October 1991.

Questionnaire reply from Lieutenant Colonel Tom Spada,
Directorate of Fighter Training and Tactics DOTO,
Headquarters, Tactical Air Command, Langley Air Force
Base, VA. October 1991.

Questionnaire reply from Commander H.D. Starling II, Naval War
College Student, Newport, RI. September 1991.

Questionnaire reply from Lieutenant Colonel Robert Stenevik,
Naval War College Student, Newport, RI. September 1991.

Questionnaire reply from Lieutenant Commander Jeff Stillwagon,
Medium Attack Weapons School Pacific, Naval Air Station
Whidbey Island, Oak Harbor, WA. November 1991.

Questionnaire reply from Lieutenant Commander Eric Sweigard,
Naval War College Student, Newport, RI. September 1991.

Questionnaire reply from Lieutenant Colonel John Vines,
Naval War College Student, Newport, RI. September 1991.

Questionnaire reply from Lieutenant Commander Brian Wood,
Naval War College Student, Newport, RI. September 1991.

Questionnaire reply from Mr. Alexander P. Zane, Naval War
College Student, Newport, RI. September 1991.

- Rhodes, Jeffrey P. "Special Operations Live." Air Force Magazine, June 1990, pp. 36-41.
- Roos, John G. and Schemmer, Benjamin F. "An exclusive AFJII interview with: General John W. Foss, USA, Commanding General, US Army Training & Doctrine Command." Armed Forces Journal International, March 1990, pp. 63-65.
- Rozman, Thomas R. "Making the Combined Arms Training Strategy Work." Military Review, May 1991, pp. 74-82.
- Schad, Dave. "In Defense of Cortina." Soldiers, May 1988, pp. 13-17.
- Schad, Dave. "Gallant Eagle '88." Soldiers, November 1988, pp. 13-17.
- Schmitt, Eric. "World Events Overtake Military Budget Process." The New York Times, 14 October 1991, p. A14:1-2.
- Silk, Leonard. "Getting the Benefit of Military Cuts." The New York Times, 20 September 1991, p. D2:1-3.
- Southwick, Curt B. "The Marine Corps Art of War Studies." Marine Corps Gazette, January 1991, pp. 47-48.
- Straight, Michael L. "Preparing for Theater Air Defense as an Airland Team." Airpower Journal, Spring 1991, pp. 18-26.
- Tangredi, Sam J. "Comment and Discussion." U.S. Naval Institute Proceedings, July 1991, pp. 14-16.
- Taylor, Jeremy D. "Unity Amidst Chaos." U.S. Naval Institute Proceedings, May 1990, pp. 158-160.
- Telephone conversation with Major David Baarclaugh, Headquarters Marine Corps, Manpower and Reserve Affairs, Washington, DC. 20 September 1991.
- Telephone conversation with Mr. Bill Brown, Chief of Naval Education and Training, Interservice Training Review Organization (ITRO) Total Force Coordinator, Pensacola, FL. 20 September 1991.
- Telephone conversation with Major Craig, Tactical Air Command DOXE (Exercise Coordinator), Langley Air Force Base, VA. 23 September 1991.
- Telephone conversation with Major Don Cunningham, 4440 Tactical Fighter Training Group (Red Flag), Nellis Air Force Base, NV. 19 September 1991.

Telephone conversation with Lieutenant Commander James M. Hudson, Commander Carrier Group Seven Electronic Warfare Officer, San Diego, CA. 30 August 1991.

Telephone conversation with Lieutenant Commander Steven Linnell, Bureau of Naval Personnel (PERS-134E1), Washington, DC. 18 September 1991.

Telephone conversation with Major Jim McEvers, Training and Doctrine Command, Fort Monroe, VA. 8 October 1991.

Telephone conversation with Lieutenant Dennis Palzkill, Bureau of Naval Personnel (PERS-461D), Washington, DC. 18 September 1991.

Telephone conversation with Commander Douglas Rhoulstone, Bureau of Naval Personnel (PERS-2JJ), Washington, DC. 20 September 1991.

Telephone conversation with Chief Snyder, U.S. Air Force Manpower Personnel Center (Joint Assignment Branch), Randolph Air Force Base, TX. 18 September 1991.

Telephone conversation with Lieutenant Colonel S.J. Tulo, Air Staff Directorate of Personnel Plans (Joint Matters Branch Chief - DPXOJ), Washington, DC. 19 September 1991.

Telephone conversation with Lieutenant Commander Williams, Bureau of Naval Personnel (PERS-2JJ1), Washington, DC, 19 September 1991.

Tyler, Patrick E. "U.S. Could Cut Defense Spending By More Than 33%, Report Says." The New York Times, 24 September 1991, A29:1-2.

U.S. Congress. House. Committee on Armed Services. Report of the Panel on Military Education. Washington: U.S. Govt. Print. Off., 1989.

U.S. Dept. of Army. Battle Focused Training. Field Manual No. 25-101. Washington: 1990.

U.S. Dept. of Defense. Conduct of the Persian Gulf Conflict: An Interim Report to Congress. Washington: 1991.

U.S. Dept. of Navy. Naval Warfare Documentation Guide. NWP 0 (Rev. P). Washington: 1991.

U.S. Laws, Statutes, etc. "Goldwater-Nichols Department of Defense Reorganization Act of 1986." United States Statutes at Large. Public Law 99-433, 99th Congress, 2nd sess. Washington: U.S. Govt. Print. Off., 1986. v. 100, pt. 1.

"U.S. Navy Seeks to Bolster Communication Weak Link." Signal,
August 1991, pp.69-72.

Vokac, Robert H. "Operations at the JRTC: Fire Support
Issues." Field Artillery, June 1988, pp. 39-41.

Willis, Grant. "Joint-duty credit for Gulf service could ease
climb to flag." Navy Times, 19 August 1991, pp. 4:1-3,
62:1-3.

Wills, Duane A. "Break Some Rice Bowls." U.S. Naval
Institute Proceedings, November 1991, p. 82.

Wyllie, J.C. "Heads Up, Navy." U.S. Naval Institute
Proceedings, May 1991, p.17.